

USER-FRIENDLY GUIDE TO LAP PORTABLES



FEATURING TRS MODEL 100 & OLIVETTI M-10

Sam Redman
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User Friendly Guide to Lap Portables

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Preface

Radio Shack's Model 100 and Olivetti's M-10 have impacted on the computer marketplace with perhaps as much significance as any computer has ever done, even in the short history of the microcomputer. Of course, the model's size and portability are the primary reasons for its wide acceptance, and being first with a large enough on-board screen and true computer power has strengthened its position of leadership.

But often overlooked when its praises are being sung is the significance of the simple level of user understanding its operation requires. The Model 100 or M-10 is the computer for the serious businessperson or student who wants true computer power and capability, but has no previous computer experience.

We feel the theme of the Model 100 and M-10 is what we refer to as "user intuitiveness." The "Main Menu" concept and the special memory of the computer point this up clearly: The user can virtually understand and operate the machine based on his own intuition. This means that he can usually act on what seem to be logical next steps, rather than from a series of abstract commands and procedures. The Model 100 or M-10 has a special memory, in that programs and files remain in the computer even when its power is off. To get to a program or document that the user has worked on previously, he merely turns the unit on and will immediately see all the programs and files displayed on the computer's screen. By using arrow keys to move a cursor, he then chooses the program or document he wishes to work with and presses ENTER. That file will then immediately appear on the screen.

If a person just being initiated into the use of computers is shown the Model 100's or M-10's Main Menu, the usual reaction is, "Don't all computers work that way?" The answer is that they do not—and therein the revolutionary nature of the machine is illustrated.

User intuitiveness has also been extended to software applications. The programs we will discuss are expressions of the Model 100 or M-10 concept—powerful, functional, and easy to understand. (They are also readily available from your local Radio Shack Computer Center or store and Olivetti dealer, or directly from Portable Computer Support Group (PCSG), 11035 Harry Hines Blvd., #207, Dallas, Texas 75229.)

The Model 100 or M-10 will always be regarded as a classic not only in computer design, but in its articulate expression of the concept of a true personal computer.

One last note about lap portable users—recognizing as we do the important and growing role of women in business, industry, and academia, we are well aware of the fact that women as well as men will be buying the Model 100 or M-10. Therefore, the presence in this book of terms such as “he,” “his,” etc., should be taken in a purely generic sense, intended only to facilitate the explanation of a technical subject by avoiding the grammatical awkwardness of the “he/she” or “his/her” types of constructions.

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Introduction

1. Ease of Use

The Model 100 and M-10 are truly “the shape of things to come” in computers. Several years ago a group of computer scientists in Palo Alto, California, sat down and described a visionary view of what the future would hold in the way of computers. Many of their ideas have found their way into the mainstream of computer design today. Much of today’s concept of “user friendliness,” for example, was predicted and conceptualized in that fateful gathering.

Of interest to us is another idea those scientists proposed. They called it the “Dynabook.” Quite simply the Dynabook was a notebook-sized computer encyclopedia that one could carry under the arm and that would have the capability of complete information processing. The Dynabook would have a virtually unlimited memory, its own screen, and the capability of tapping into and communicating with computers everywhere. In short, the Dynabook would provide each user access to virtually all of the world’s knowledge, almost instantly.

The Model 100 or M-10 is not the Dynabook, any more than the Model A Ford was the automobile of 1984. But in the same way that the Model A Ford represented a culmination of automotive design concepts and truly stated in a most functional way the shape of things to come in automobiles, the Model 100 or M-10 is a functional classic in computers. It is the forerunner of what will eventually be the Dynabook and it is eminently practical right now—not as a curiosity, but as a useful, dynamic tool that lets the executive, the manager, the student, or just about anyone who needs to process information have the ability to do so always at his fingertips.

The Model 100 or M-10 computer is remarkably easy to use. Anyone who has used any type of keyboard will find that he can begin to

operate it from the very first moment that he takes it out of its box. It truly requires no knowledge of computer operation at all. In fact, there is an excellent program, which we describe later in this book, that teaches the required keyboard skills so that anyone can become a competent Model 100 or M-10 typist, being taught by the computer itself.

2. What a New User Needs to Know

The first instruction that needs to be given to those beginning to use the Model 100 or M-10 is not to be concerned that they will have to know anything about the inner workings of the machine or the complexities of how to program. When, as a computer neophyte, you first glance at the Model 100 or M-10 manual, it can be a pretty frightening prospect, because much of the terminology appears to require intensive study or prior understanding. Further, there are explanations of basic programming language that are really not meant for beginners.

But the best advice is to relax and realize that you literally do not have to know anything about the computer in order to use it effectively. There is a phrase that is used in government circles regarding the dissemination of information classified as secret. This phrase is called "the need to know" principle. "Need to know" is explained this way: An individual is provided access to secret information only as he requires the knowledge to do his job. When learning the computer you will find that there is far more information available to you than you will ever require. Most computer manuals tend to throw terms and facts at the user in such a way that it is very easy to become confused. It is our theory that you should approach your Model 100 or M-10 on a "need to know" basis. Later you can come back and learn some of the extraneous information in depth. For now let us take one step at a time and build from a very simple base of learning to put the computer to use right away with applications that will help you in your daily activities.

There is no question that the Model 100 or M-10 computer is an extremely powerful apparatus that has the capability of keeping an advanced computer technician happy and satisfied in his work. What we want to show you, however, is that it is also a very practical tool. We will show you how to turn that power to your benefit by teaching you a way in which to use the computer strictly as an application device that serves you. Remember, there are programmers and computer scientists busily at work preparing programs that enable the computer to perform for you. This book is designed with the thought in mind that you should approach your computer not from the standpoint

of learning its technical aspects, but instead by learning the greatest number of applications that you can get from it. We believe that a mistake is made by many people who first approach a computer as though it must be mastered with a full and complete understanding. Then they get discouraged. It is like someone feeling that he has to become an electrical engineer in order to watch television.

The following pages are written with the philosophy that if you have a use for the computer, it can be made to serve you simply and easily with very little specialized knowledge. The instructions we provide for the various applications programs are in effect step-by-step tutorials. Most software manuals make the mistake of assuming that the user already knows a lot of terms before he begins. The problem is that even if you are familiar with some of the terminology, a new phrase will crop up that is undefined, or perhaps you will be presented with a term that you once knew but have now forgotten, and then you are "dead in the water." It is pretty difficult to try to ask a manual, "Where do I go from here?"

We call our approach "the take you by the hand method." You may find it appears somewhat childlike at times, but remember, we are all children when we begin learning something new.

3. Various Applications

We keep referring to the Model 100 or M-10 as a "tool"—and what a tool it is. We feel there are, of course, many job categories where it can be used: Probably virtually 70 percent of the population could find it a useful and a productive addition to their lives. Some of those applications include:

- *Managers:* Business calendar; daily or travel itineraries; employee records; memos; letters; telexes; electronic mail; inventories; reports; charts; graphs; financial reporting and projections; budgets; compilation of any information that needs to be selectively recalled at a later date.
- *Sales personnel:* Expense reports; customer records; invoices, shipping reports; sales reports and graphs by product, territory, of sales personnel; schedules of calls; promotional letters to clients, each personalized but generated from one master by the computer.
- *Clerical:* To replace the need for typewriters and filing cabinets—in other words to provide clerical workers with the ability to do better every job they do, from keeping track of names and addresses to

preparing extensive reports, more quickly and more easily and with far greater accuracy than ever before; to improve typing skills.

- *Writers:* Full word processing capabilities enable a writer to compose correctly, modify, and print out his work in a series of as many drafts as is required, only retyping what needs to be changed. Complete portability means he can take his work with him.
- *Students:* Outlining, writing book reports, compiling factual information normally reserved to the three-by-five file card for research reports. Such information can be reviewed by the student in a variety of ways. He can make the computer search and find just the facts he is looking for, or he can cause the computer to print out tables of facts arranged just the way he wants. It is useful for note taking in the classroom, and can be used as an instructional aid to learn typing, or to help him commit to memory any factual information he may need for his studies.
- *Personal use:* Home budgets; financial life planning and projections; correspondence; household grocery inventory and price comparisons; fun fact banks such as food and calories or other nutritional information; learning to type or learning a foreign language.

Many of these applications, of course, overlap and if you are a business person and you read the entire list you will see many applications described in categories besides your own that fit your needs. In this book we will provide you with the tools and the knowledge to put the Model 100 or M-10 to work for you for all of the applications we have mentioned. From time to time we will refer to the Model 100 and M-10 manuals. This guide is not meant as a complete replacement for those manuals because some of the explanations in the manuals are quite useful, especially when they are taken in the proper context. But the guide will introduce you to the Model 100 or M-10 features as you will use them. Most of the software we describe is available at your Radio Shack store or Radio Shack Computer Center and Olivetti dealer. The rest of it is available directly from the Portable Computer Support Group (PCSG).

The TEXT Program

1. Text Creation

Your Model 100 or M-10 has one of the easiest-to-use text creation and manipulation programs available in any computer. It is called TEXT. TEXT is where you type words to compose letters, memos, and other documents. It is extremely easy to use and you will find that after a few minutes of experimentation you will be manipulating and correcting your texts like a pro.

A full explanation of how to create text files by means of the TEXT application program is provided in this chapter. We will discuss the "function keys," which are used more in TEXT than in any other of the built-in programs, tell how to create and print a text file, and detail how to save and load text files. [The program is also useful for WRITE+ (available from PCSG), which uses text files created in TEXT and allows you to format them.]

Before you start to use the TEXT program, you should recognize and be aware of both the computer's and the program's shortcomings. First of all, you are typing on a screen that is only 40 characters wide. The problem with this is that you do not get a good picture of what the finished product will look like when you finally print it out. However, once you realize that all you are doing is entering copy, and that when you finally print it out you can make it have any appearance or format you desire, you will learn quickly to accept the screen as just a temporary view of what you are typing. The second major disadvantage has to do with the program, but is easily overcome: TEXT does not allow you to print out a formatted version. Now TEXT does have a mechanism so that you can quickly dump out its content through a printer. But what you get from that type of printout is just the raw information with no left- or right-hand margins and no page breaks or any of the

other myriad niceties that are necessary for a professionally done letter or report. You can overcome that inadequacy, however, by using the excellent TEXT formatting program, SCRIPSIT 100 or PRNT10, which is available from your local Radio Shack store or Computer Center or Olivetti dealer. We discuss how to use SCRIPSIT 100 and PRNT10 in detail in Chap. 3.¹

There are a few other minor features which the TEXT creating program lacks, but you will find that they are insignificant and really not necessary because of other features TEXT *does* have. For example, TEXT has a built-in mechanism that gives you the ability to move text around, which you can use to correct and copy it. This feature is superior to most text editing functions or even the abilities of most touted stationary computers, and you will find others also that make up for whatever else might be missing. The following is an explanation of how to use the TEXT program so you will be fully capable of performing every function that it can accomplish.

2. Movement of Cursor

Starting with the Main Menu (you get there by turning on a little switch on the right-hand side) put the wide-bar cursor on TEXT and press ENTER. (You move the wide-bar cursor about the Main Menu by using the arrow keys. If you have not practiced using those keys on the Main Menu, you should do so.)

After you press ENTER with the cursor on TEXT, you will be shown the screen with a prompt line that says:

```
File to edit?
```

This prompt is asking you to name the memo or document that you are getting ready to type. Each document you prepare is called a "file" and the name that you give it is referred to as a "file name." A better prompt would probably have been "Name of file?"; but the computer's designers chose "File to edit?" for some reason. You need to give your document a name at this time. You may call it anything, using from one to six characters. Type that name in, and then press ENTER.

Now you will see a clean screen with a blinking square dot or cursor in the upper left-hand corner. Just begin typing and consider the

¹SCRIPSIT 100 and PRNT10 are different versions of the same program; see the beginning of Chap. 3, where the distinction is explained.

screen as though it were a piece of paper. Use the keyboard in the same fashion that you might expect to use a typewriter. There are some variations, but we will explain those as we go along.

Keep typing in order to produce copy to use later. One of the first things you will notice is that you do not have to be concerned about reaching the right-hand edge of the screen, as you would using a conventional typewriter. When you get close to the end of a line, the text automatically moves to the next line. Something else happens automatically as well. Words are not split in the middle if there is not enough room for them on the line above. Instead, the word that was too big to fit is moved completely to the next line. In computer jargon this is referred to as "word wrapping." In other words, the word or the line just keeps wrapping itself through the document. There is something that can be a little confusing about this. If you notice after a word wrap that it looks like extra spaces are now in the line above, just remember it only *appears* that way on the screen. When you print out your copy, it will look exactly as you want it to. Also you will notice that most lines begin with the first word flush against the left-hand edge. Sometimes this can be confusing because from the way you are typing the document it would seem that there should be a space at that point. If you are putting several spaces after a word that was the last word on a given screen line, not all those spaces will necessarily appear on the screen. Just remember this is screen appearance *only* and when you print out the copy, it will look just as you typed it. Experiment with introducing several spaces after the last word on any line and become familiar with how many it takes before spaces begin appearing at the left-hand edge of the next line.

For instructional purposes, we ask you to continue typing until you have filled the screen, and then type several more lines. Notice that after you have filled the screen and begin typing the next line, the text moves up, the top line going off the screen out of view at the top. This effect is known as "scrolling." It is as though you were typing on a very long sheet of paper and the screen were a window that had the capability of moving up and down the sheet. When you start to type, the screen is at the very top of the long sheet, and as you continue the sheet seems to unroll from its bottom once the screen is filled.

Whenever you wish a paragraph to end and a new one to begin, just press the ENTER key. When you press the ENTER key, you should notice that a small triangle appears in the screen after the last character you typed and the cursor moves to the beginning of the next line. One mistake a lot of people make when they first start to use the TEXT program is that they forget about the word-wrapping feature we talked

about and always hit the ENTER key at the end of the line just finished as if it were a carriage return key on a conventional typewriter. But once you are aware you do not need to do this, it is pretty easy to break the habit.

By the way, the ENTER key is also known as the “carriage return” or CR key in computer terminology, which is pretty confusing since it does not function as a carriage return at all but instead as a paragraph key. You will also hear some people refer to the ENTER key as the RETURN key. Any time you hear anyone mention any of those three terms, you will know they mean the same thing.

The first thing you might want to do is make a correction, but we ask you to continue typing along, just creating any words that you can think of and not worrying about mistakes. When you have typed several screens worth of lines, we will then help you experiment with several of the keys that do different things to aid you in preparing and correcting your document.

3. Arrow, Function, and Command Keys

First we will demonstrate the arrow keys.

Practice with the up and down and left and right arrow keys. Notice that the left and right arrow keys move you one space or character to the left or right, respectively, each time they are pressed, while the up and down arrow keys move you one line up or down.

When an arrow key is held down, it goes on automatic and will move you in the same direction as when pressed once, but much more rapidly and without stopping until you release your finger.

The CTRL (control) key and the SHIFT key will enable you to do some other, even fancier, moves with your arrow keys. Practice with each one of the arrow keys, holding down first the CTRL key and each arrow key and then the SHIFT key and each arrow key. Notice that the CTRL key and right arrow move you to the right-hand end of the line that the cursor is on, while the CTRL and the left arrow take you immediately to its left-hand end. CTRL with the up arrow takes you to the top of your document instantly; CTRL with the down arrow takes you to its bottom.

SHIFT and the right arrow key move the cursor one word at a time in the right-hand direction and SHIFT and the left arrow key move it in the left-hand direction. (Notice that each time it moves, the cursor lands on the first letter of the word.) SHIFT and the up arrow key move you immediately up one screen length and SHIFT and the down arrow key moves you instantly down one screen length, or merely to the bottom of your text if the screen is not full.

You should practice using these arrow keys alone, and then with the SHIFT and control keys, until you are very familiar with how they can move the cursor. You will find that when you are preparing your document, it is extremely useful to move about your text rapidly.

Now let us summarize the relationship between the CNTRL, SHIFT, and arrow keys and cursor movement:

- Right arrow once: moves cursor one space or character right
- Left arrow once: moves cursor one space or character left
- Up arrow once: moves cursor one line up
- Down arrow once: moves cursor one line down
- Right arrow held down: moves cursor automatically right, repeating until key released
- Left arrow held down: moves cursor automatically left, repeating until key released
- CTRL and right arrow together: moves cursor instantly to the right-hand end of line
- CTRL and left arrow together: moves cursor instantly to the left-hand end of line
- CTRL and up arrow together: moves cursor instantly to top of the document
- CTRL and down arrow together: moves cursor instantly to end of the document
- SHIFT and right arrow together: moves cursor to the right one word when pressed once
- SHIFT and left arrow together: moves cursor to the left one word at a time when pressed once
- SHIFT and up arrow together: moves cursor instantly up one screen length
- SHIFT and down arrow together: moves cursor instantly down one screen length

Along the same row on your Model 100 or M-10 as the arrow keys, you will observe others. The first eight from left to right are called "function keys," and are labeled F1 through F8. The group of four next to the arrow keys are called "command keys," and are labeled PASTE, LABEL, PRINT, and BREAK/PAUSE. At this time press the command key LABEL. You will notice that at the bottom of the screen a series of names appears, located directly above numbers. Those numbers, 1 through 8, refer to the function keys F1 through F8. The names or labels are merely reminders of what each function key does. In the

rest of this section we will discuss each function key and describe the special task that it is intended to perform for you when you use the TEXT program.

(Remember that for each program we will talk about in the book, the function keys will usually do different things. Sometimes there will be duplications from program to program, but more often the purposes will be different. That is the reason for having a LABEL key—to jog your memory about what the function keys do.)

Notice that when you press the LABEL key a second time, the labels disappear. Also notice that when they are present, your window to look at your text is only seven lines long. You will generally find that it is nice to have all eight lines available, and therefore will want to press LABEL only when you need labels.

Turn them on at this time and notice that they show:

Find	Load	Save		Copy	Cut	Sel	Menu
1	2	3	4	5	6	7	8

Notice that over the 4 there is no label, which is because function key F4 does not have a purpose in the TEXT program. Function key F8 is designated as "Menu." Press F8 and the file you were typing will be saved in the computer's memory while the screen will immediately revert back to showing the Main Menu where you started. Press F8 at this time.

You can accomplish the same thing as F8 in TEXT by pressing the ESC (escape) key twice. When the screen has reverted to the Main Menu, observe that the file name given to the document back when you were given the prompt "File to edit?" is now in a slot just like the program names. Observe that after the file name appears ".DO." This is known as the "extension"; DO is short for "document."

On the Main Menu, move the wide-bar cursor with the arrow keys and put it on the document file name that you are preparing. Press ENTER. You will now be back into the document that you were typing. Notice that the cursor is in the upper left-hand corner and that the first line of the document appears at the top of the screen.

Your TEXT program has a wonderful mechanism that lets you search for any words or characters in your documents that you would like. You will find that this is useful whenever you wish to make corrections or additions. For example, if you wanted to insert a sentence or a paragraph at a particular place in your document, you would want to have your cursor appear at that place so you could begin typing. Of course you could search by using the arrow keys as we

talked about earlier, and sometimes it is very helpful to scan through a document using the SHIFT/down arrow combination. But it is very nice to go directly to a certain word or phrase or character instantly. For this we use the function key F1, labeled "Find." Remember to press your LABEL key any time you wish to be reminded of the function key names. At this time press F1.

In the lower left-hand corner of your screen will now appear:

String:

(If your labels had still been turned on, the prompt "String:" would have appeared on the line directly above the label line and you would have had only six lines of text showing.)

What the prompt "String:" means is that the computer will search for the first occurrence of whatever characters you type after the colon. "String" is a computerese term which means a series of characters or spaces grouped together, in a sense, "in a string." Type in several letters or a word or even several words that you wish to find in your document. Now press ENTER. If the characters are not in your document as you typed it, the words

No match

will appear at the bottom of the screen. But assuming you did type them into in your document, the cursor will now move immediately to the first instance of the first character of the first word in the string that you are looking for. Press F1 again and the prompt "String:" will appear once more with the characters you have typed in still present. Press ENTER again and the cursor will go directly to the second occurrence of the string. You can keep repeating this sequence all the way through your document and find all the occurrences of the word or phrase. When there are no more occurrences, the words "No match" will appear.

If you have finished searching for one phrase or word and wish to search for another, and you press F1 again, the word you searched for first will still appear. You then simply press the left arrow and the old word will disappear, or you can begin typing a new word and the area will immediately be cleaned for the new word.

You will find the F1 (find) function extremely useful when you are doing corrections, as we will talk about in Sec. 4, or when you are making additions. At this time, just practice searching for and finding different words or phrases in your document.

4. Making Corrections

The TEXT program equips you with some excellent tools for making corrections. The first key that you should become familiar with is the "delete-backspace" or DEL BKSP key. Experiment with it at this time. Observe that when you press SHIFT and the key it is in the delete mode. This means that whatever character the cursor is on is erased and the cursor appears then on the character immediately to the right of the one erased. In this fashion, if you press the delete key repeatedly, the characters and words to the right are repeatedly erased, as they fall under the cursor. To use this key in the backspace mode, you do *not* press SHIFT when pressing DEL BKSP. In proper terminology, this is not truly a backspace key at all, which tends to be confusing to most first-time users. The left arrow key is really the key that backspaces. What is really meant by BKSP is "erase left."

As you experiment with the BKSP, you will observe that the characters to the left of the cursor are disappearing but that the character *under* the cursor does not disappear as it does when you are using the SHIFT-DEL mode.

At this time, take your cursor back to the beginning of your document, using CTRL/up arrow. Practice pressing F1, typing in a word you wish search for, deleting it, and then typing in something new. Notice that as you type something new in the middle of a section of previously typed text, the new characters are automatically inserted right into the middle of the document. The words that are to the right of or below what you are inserting are just moved to the right to make room for the new words. Some people, when first beginning to use their Model 100 or M-10 and wanting to make a correction, will just place the cursor over the word they want replaced and start typing, thinking they will type over the old word and replace it with the new. But the TEXT program does not work that way. It only works in the insert mode. Some word processing programs have what is called a "replace mode," which allows you to switch back and forth between inserting and deleting as you desire. But the Model 100 or M-10 has only the insert mode. You must remove the word with either the DEL BKSP key or by means of another procedure we will explain in Sec. 5.

5. Editing with Cut and Paste

Your TEXT program has another wonderful feature called "select, cut, copy, and paste." This mechanism allows you to use many different procedures in correcting and manipulating your text. Press the LABEL key again to remind yourself of the function key names. Notice

that F5 is labeled "Copy," F6 "Cut," and F7 "Select." These three keys, as well as the command key marked PASTE, are used in this procedure.

In order to practice the procedure, move your cursor to the top of the document (CTRL/up arrow). Select a block of characters or words that you wish to manipulate. Press F7 (select). Nothing happens that you can observe, but what the computer has done is mark as the beginning of the block the current cursor location.

After you have pressed F7, choose the block by moving the cursor to a particular point in the text. The letters or words in the block will be shown to you in reverse video, meaning that the background will be black and the characters light. By moving the cursor to a final destination, you do what is known as "defining the block."

If at any time when you are selecting and defining a block you wish to cancel the operation, you may do so just by pressing SHIFT and the BREAK/PAUSE command key at the same time.

After pressing F7, you can define the block using any of the methods described earlier for moving the cursor. For example, if you want to define as a block a single word at the point where you made your original selection after pressing F7, you use SHIFT/left arrow or SHIFT/right arrow, depending on the direction of the word you want to define.

Experiment with defining blocks using all the different ways that we have learned to move the cursor: arrow keys, arrow keys in combination with SHIFT or CTRL, and F1 (find).

Depending on what you are doing with your document, you may find yourself using all the different cursor movement methods to define blocks. But when you have defined them, what can you do with them? You have two options: You can either cut a block by pressing the F6 key or copy it by pressing F5.

To "cut" means to delete the block completely from its defined location. When you cut, however, you do not destroy the block completely. There is a part of your computer known as the "paste buffer." This is a special section of memory that temporarily stores text you have defined and then cut or copied. If you do not wish to recall the deleted section of text, it just remains in that buffer until you are ready to select another block and cut or copy it. If you wish to place the cut material elsewhere in the document, however, just move the cursor to the location where you would like it to appear and press the command key PASTE. Immediately a duplicate of the text block you defined and cut will appear where you have placed the cursor.

The section of text you cut and pasted is still recorded in the paste buffer, and you can put it out on the screen as many times as you wish. Each time you press the PASTE key, the phrase or paragraph is

duplicated again. Therefore, you could cause a line of type to be reprinted on the screen over and over, or you could move with the cursor each time to a new location and duplicate something again and again.

The F5 (copy) key enables you to duplicate a block of text that you have selected, but without deleting the original block. The text that you have defined remains when the reverse video disappears, but the duplicate image of that text is held in the paste buffer in the same way as when you pressed F6 (cut). Use of the select, cut, copy and paste functions enables you to move sections of text, insert words, and alter your document in various ways from how you originally created it. In Chap. 3 we will talk about the excellent TEXT formatting program, SCRIPSIT 100 or PRNT10. In that chapter we will also describe a technique called "search and replace." Searching and replacing would be used where you have a document with a single reference or name sprinkled throughout its entire length and you want to replace the phrase or name wherever it appears with something new. Study that technique when we come to it and learn it well because you will find it extremely useful when editing or updating old material for a new purpose.

Occasionally you may wish to print out the text file just to see what it looks like. The TEXT program does not have the capability of printing a formatted copy, as we noted earlier. (For that you must use the SCRIPSIT 100 or PRNT10 text formatting program we discuss in Chap. 3.) What you can do, however, is what we refer to as "dumping." A screen dump simply means that you print out whatever is appearing on the screen at a given time. To do this, just press the command key PRINT. Of course, you must have your computer connected to a parallel printer. This is a very simple connection, and is done using the Model 100 or M-10 printer cable available from your Radio Shack Computer Center or Olivetti dealer. The appendix section of your Model 100 or M-10 manual contains an adequate description of how to connect your computer to a printer.

If you wish to print the entire file, just press SHIFT and the command key PRINT at the same time. In the lower left-hand corner of the screen you will be shown the prompt:

Width?

It will show you the present width setting. This width choice does not provide you with margins, but simply designates how wide it will print the material on the printer with a left-hand margin of zero. If the current setting is satisfactory, press ENTER; if it is not, type in the new setting and then press ENTER. The entire file will print out with

no margins or page breaks. At first you might think this print feature is something you will find useful. But after you begin using the SCRIP-SIT 100 or PRNT10 text formatting program, you will want to keep that program in your computer at all times so you can always print out your document files in the attractive format you would want them to have as finished products.

If while you are printing you want the printer to pause, just press the command key PAUSE. When you are ready to resume, press it again. If you want to cancel the printing operation entirely, press SHIFT and the BREAK/PAUSE key at the same time.

6. Saving and Loading with Cassettes

There are two other function keys that are necessary for you to know about in order to fully utilize the TEXT program. These are F2, labeled "Load," and F3, "Save."

As you type documents, you will find that the computer's memory is soon consumed. You will need to be able to save what you have typed so you can bring it all back into your computer memory for use at a later time.

Diskette storage makes the most sense for recording your files. We recommend that you either have one of the excellent PERCOM portable disk drives for your Model 100 or M-10 (available from PCSG), or the excellent DISK or DISK10 program available from your local Radio Shack store or Computer Center or Olivetti dealer, which lets you use another computer's disk drives as your storage device. If neither of those are available to you, then store on cassettes (known as "saving to cassette"), but observe the following procedures carefully in order to get the most reliable results.

Cassette recording has limitations in that often files which are stored on cassettes are unable to be retrieved. It is therefore very good advice to always save three times so you will have proper backup insurance copies. If there is even one tiny imperfection on a tape, the whole load it carries is aborted.

Here is how to save: *ON CASSETTE*

1. Connect your tape recorder as described in the appendix of your Radio Shack Model 100 or Olivetti M-10 manual.
2. Purchase a tape recorder that is designed for use with the computer. The Radio Shack CCR-81 is good, and there are several others on the market. Just make sure it has the capacity to rewind and go fast forward with the computer connector cables in place. Most audio types do not. It makes a real difference. Also the CCR-81 plugs in

directly to alternating current without a transformer, and it takes batteries, so it is completely portable if you need it to be.

3. Be sure the cassette you use is rewound and then advanced past the leader. The leader is a bit of neutral nonrecording tape at the beginning of the cassette that is used to secure the magnetic tape to the spools. It is colored differently from the magnetic tape, so you can see the difference. Use either a pencil inserted into one of the spool holes, or fast forward on your recorder. Check to see that the magnetic recording tape is ready to go at the place where the recording head is on the recorder.
4. Make sure the tape recorder has its PLAY and RECORD buttons pressed into the locked position.
5. When you are in the text file you wish to save on cassette, press F3; the screen will say:

Save to:

Just type in the file name you wish to call it on cassette, using up to six letters, and press ENTER. The recorder will run automatically and shut off when the saving is complete. To make the backups, just repeat the process several times, pressing F3, typing the file name, and pressing ENTER.

6. Rewind the tape to its beginning and remove it from the recorder. Be sure to label it with the file name that you saved it as, and store it in a proper cassette holder away from any magnets. A magnet can destroy a computer signal on the tape. Most people do not realize it, but telephones contain magnets and storing cassettes near one can irreparably damage their contents.

To load a file from a cassette:

1. Connect the tape recorder as described in the previous section. Rewind the tape completely. It may be rewound already but make certain. Press the PLAY button into the locked position.
2. Turn on your Model 100 or M-10. The Main Menu will be on display. With the cursor on TEXT press ENTER.
3. The screen will say:

File to edit?

Type in the name you wish to call the file you are loading, using up to six characters. Remember, it does not have to be the same name under which the file was recorded on the cassette tape.

4. Press F2. The screen will say:

Load from:

Type in the name under which the file was recorded on the cassette tape. You do not have to put a .DO extension. Press ENTER.

5. Automatically the cassette player will begin to run. After a moment or two, and while it is running, the screen will say:

Found:

and will list the file name on the screen.

6. While the cassette recorder is running and the file is loading, you will hear a high-pitched sound that warbles and varies in pitch and intensity.
7. When the load is complete, the screen will fill with the file you have loaded.
8. You might get a screen message that says:

Aborted

This means you got a bad load. You can experiment with several techniques to improve your load. If you are using an audio tape recorder, you can turn the volume up to its maximum level. With any tape recorder you can experiment with higher volumes. Next, you can try loading the file from one of the backup positions on your tape. Sometimes the first entry can be damaged, because tape at the very end of the reel tends to get stretched. Be sure you are not operating your tape recorder near a television, a CRT screen, or a telephone. Last, you can turn the sound off on your Model 100 or M-10. This improves the input signal. Sound is turned off in the following way: (a) From the Main Menu put the cursor on BASIC and press ENTER. (b) Screen says "Ok." (c) Type in SOUND OFF and press ENTER. (d) Press F8 to return to the Main Menu.

As you experiment with the TEXT program, you will find it is an extremely easy-to-use system for generating and editing documents. Chapter 3 describes the SCRIPSIT 100 or PRNT10 text formatting program. That program, combined with TEXT, turns your Model 100 or M-10 into a virtually full-scale word processing machine. You will be able to produce memos, letters, reports, and documents completely and professionally.

SCRIPSIT 100 or PRNT10: An Easy-to-Use Text Formatting Program¹

1. What You Can Do

Now the Radio Shack Model 100 or Olivetti M-10 becomes a true word processor. Instead of a mere text preparation device, as it has been described so far in this book, it emerges as a tool to be used by anybody in preparing finished articles. It can prepare a letter that is properly formatted. It can print records that are organized exactly the way you want them, with a title page, topic headings, page numbers, and even headers and footers.

SCRIPSIT 100 or PRNT10 works like this: You prepare your document using the TEXT program. You then access WRITE from the Main Menu and type in the name of the document. SCRIPSIT 100 or PRNT10 then allows you to print out a perfectly formatted copy. You can also do special formatting variations using easily learned “embedded commands.”

This chapter provides an easy-to-understand explanation of the program, beginning with how to set up (and modify at will) a specifications file called WSPEC that describes the various characteristics of the format which you want it to have. With WSPEC, you will not have to set all the characteristics each time—it will remember them for you.

Any time you want, you can make changes almost instantly. For

¹SCRIPSIT 100 is a trademark of Tandy Radio Shack; PRNT10 is the Olivetti trademark for a similar version of the same program.

example, it lets you set left- and right-hand margins at separate values. It lets you set the top and bottom margins at separate values. It gives you the ability to enter any header or footer you like, and it automatically prints the date, and even the time of day, if you wish at the top or bottom of each page. Each successive page number is printed consecutively at the bottom or top of each page. You can pause between pages and even print multiple copies.

There are, in addition, a whole host of other options and features that the SCRIPSIT 100 or PRNT10 program enables you to do. For example, it has signals called "dot commands" that embed inside your text. If you need a variety of different formats within a single document, it can easily be done. You can even have a justified right edge paragraph in the middle of a ragged right edge document.

To summarize what you can do with your SCRIPSIT 100 or PRNT10 program, you can:

1. Center headings
2. Center text
3. Justify right-hand margins
4. Print multiple copies
5. Number pages at top, bottom, or both places
6. Set right- and left-hand margins
7. Start paginating at your choice of page numbers
8. Print a title page
9. Print a title page in the middle of a document
10. Use a memo format (optional line space between paragraphs)
11. Use standard block letter format
12. Indent paragraphs
13. Have headers, footers or either
14. Have a date or time of day in headers or footers
15. Break text by chapter end feature
16. Utilize a document end feature
17. Have an optional extra page at the end of the document
18. Have justified and ragged right edges in the same document
19. Pause between pages
20. Skip lines
21. Print with double, triple, or more space between lines

22. Set multiple margin widths in same document
23. Retain favorite format in a spec file (no setting each time)
24. Have underlining and other printer features
25. Have redirectable output
26. Use column format
27. Have a printout width of up to 132 characters
28. Set top and bottom margins (at different widths if so desired)
29. Have an optional header or footer on certain pages
30. Search and replace words, phrases, or sections
31. Use multiline headers or footers
32. Print in outline style
33. Interrupt and resume printing
34. Start and stop at designated page
35. Suppress printing of "orphan" lines
36. Use global printer command codes
37. Use tab

2. Loading the Program

- A. Place the cassette labeled SCRIPSIT 100 or PRNT10 into your cassette player. Adjust the volume between 4 and 5. Make sure you are connected properly—see your manual.
- B. Rewind the tape completely. It may be rewound already, but make certain. Press the PLAY button into its locked position.
- C. There are three items that must be loaded into your Model 100 or M-10 in order to run the SCRIPSIT 100 or PRNT10 program. The first is a TEXT file, the second a machine code, and the last a BASIC program. All are easy to load.
- D. With the cassette installed, turn on your Model 100 or M-10. The Main Menu will be on display. With the cursor on text, press ENTER.
- E. The screen will say,

File to edit?

Type WSPEC and press ENTER.

- F. Press F2. The screen will say,

Load from:

Type WSPEC and press ENTER.

- G. Automatically the cassette player will start running, and while it is running the screen will say,

Found:WSPEC

- H. After a while, the cassette player will stop and the screen will fill with text that will be explained later. Press F8 to return to the Main Menu.

- I. Do not touch the settings on the tape recorder. Put the cursor on BASIC and press ENTER. The screen will say,

Ok

- J. Press F2. The screen will say,

Load "

Type in CAS:CORTNS and press ENTER.

- K. Automatically the cassette player will run and after a while the screen will say,

Found: CORTNS

Then after a little longer the screen will say,

Ok

- L. Press F4. The screen will say,

Run

and the cassette player will run again automatically. When it stops the screen will say,

Ok

M. Now type RUN 50 and press ENTER. The screen will say,

Ok

N. Press F2. The screen will say

Load "

Type in CAS:WRITE and press ENTER.

O. Automatically the cassette player will run again and the screen will say,

Found:WRITE

P. When the player stops, the screen will say,

Ok

Q. Press F3. The screen will say,

Save "

Type WRITE and press ENTER. Screen will say,

Ok

R. Press F8 to return to the Main Menu.

To improve your working capacity, you will want to save programs and files to other tape to clear your memory when running new programs. *However, the CORTNS.CO program that you just loaded from the SCRIPSIT 100 or PRNT10 cassette is one that you just leave in place.* It is used in several programs other than SCRIPSIT 100 or PRNT10. In order to reduce clutter, and because it is not user-accessible, however, it does not show on the Main Menu screen. It only consumes a tiny amount of memory (less than 300 bytes).

What about I/O Errors?

It is possible that you might get an input-out, or "I/O," error when you are loading a file or program from a cassette. This means that the transmission from the tape is faulty. It could be a problem with your tape recorder, or it could mean a "glitch" in the tape. If there is even

one tiny flaw in the tape and any of the data being transmitted is dropped, you can get an I/O error where the program or file does not load. Here is what to do about it.

1. Every program and every file is on the tape at least two times, and most of them three times. Do not change the setting on the tape recorder. (Check to see if the volume is set between 4 and 5.) Just press F2 again, and repeat the entry, following the instructions given in the chapter that describes the program or file you were loading when you got the error. The recorder will start again automatically and should load just fine.
2. If you get another I/O error, just repeat the process again. In almost every case you have a third chance for each file or program.
3. If you still get an I/O error, rewind the tape and repeat the entire loading process again with the volume set higher. There is no need to kill anything already loaded. The computer will write right over it. All programs are duplicated on the reverse side of the tape, but you should try side 1 at your highest volume level before trying side 2.
4. If you still have difficulty, try going into BASIC, typing in SOUND OFF, and pressing ENTER. Then attempt another load. The input signal from the tape is robbed in order to provide the sound that you hear during a load. This "sound off" technique has proven very reliable in otherwise impossible situations.
5. Be certain of your tape recorder/player. The CCR-81 from Radio Shack is designed to transmit computer signals. Audio types often cause I/O errors, because the "azimuth configuration" of the playback head is unsuitable for transmission of data.

If you buy the CCR-81, you can be reasonably assured your problems are not with the cassette recorder, and will certainly improve your chances of good data storage and retrieval.

3. Getting Started: The Spec File

WRITE is the program from which you will actually print any text that you have prepared. WSPEC is the specifications file that lets you keep your favorite or most commonly used format spec ready for printing so you do not need to make format entries each time.

Let us go through a typical document, printing and formatting in the simplest way. Then we will discuss step by step ways to do all the variations possible.

Step 1. First, from the Main Menu, place the cursor over WSPEC and press ENTER. The screen will then show the format specs, which look like this:

```

Lines per page:66◀
Line length:80◀
Top margin:3◀
Bottom margin:3◀
Left margin:8◀
Right margin:4◀
Printing lines per page:62◀
Header (%D=Date, %T=Time, %P=Page#):◀
      %D           Page %P◀
Footer:◀
      PCSG, 11035 HARRY HINES BLVD
#207,DALLAS,TX 75229 214-351-0564◀
Header switch:1◀
Footer switch:1◀
Format;N=Normal,J=Justify,C=Center:N◀
Line spacing:1◀
Extra line on paragraph?(0=no,1=yes):1◀
Start printing at page:1◀
Last page to print:E◀
Number of beginning page in document:1◀
Number of copies:1◀
Pause between pages?(1=yes,0=no):0◀
Feed page at end?(0=no,1=yes):1◀
Output to:◀
LPT:◀
Setup string:◀

```

This specification describes a formatting arrangement that will satisfy most requirements. But you can quickly change any one, or all, of the specs to meet your own requirements.

Each spec is explained in detail on the following pages.

Step 2. *You need to change the footer.* Most of the specs you can leave alone and just use the file the way it is until you learn how to make it more flexible. But you need at least to change the footer from the software author's company address and phone number to one useful to you.

Notice that there are small triangular graphic symbols, which represent carriage returns, at many places throughout the WSPEC layout. These are important, and you must respect their positioning. Whenever you substitute any information in the spec, you must be sure you do not change the way these carriage return symbols are placed. You can always refer back to the section of your manual discussing the spec file if you think you have messed any up, or you can reload from your cassette.

To delete the old footer:

- A. Put the cursor on the carriage return triangle at the end of the old footer (use arrow keys).
- B. Press F7 (select). Press CTRL/left arrow and then up arrow (no CTRL) one time. Old footer is in reverse.
- C. Press F6 (cut).

To put in your own footer: Just type it in as you want it to appear. This may require some experimentation since the screen is narrower than the paper. Bear in mind that the footer should be shorter than the width of your page.

Step 3. We will go through a typical run with the SCRIPSIT 100 or PRNT10 program.

First, prepare some text that you wish to format as follows. Go to the Main Menu; position the cursor on TEXT and press ENTER. After naming your file (six letters), simply type in whatever copy you wish to print out later. We will be discussing many of the features that are characteristic of the TEXT program, but you should be familiar with them already from reading and studying Chap. 2 of this guide. When you have completed your document and are ready to format, exit to the Main Menu by pressing F8.

Step 4. You should have your printer connected and on. Place the cursor over WRITE and press ENTER. The screen will show the files and prompt you by asking,

Which file to print?

Type in the name of the text file that you wish to format and press ENTER. The screen will say,

Press ENTER when printer ready

Make sure your printer is connected and on, and the paper is positioned properly. Then press ENTER or any key to continue. The screen will say,

Printing #1 of 1

and the document will begin printing immediately, being formatted in the style described in the WSPEC file. The “#1 of 1” refers to the

multiple-copy feature, not the page number, which is explained later in this chapter.

If you like this format, simply leave the numbers the way they are. But if you do not—if you would like your top or bottom or left- or right-hand margins to have different settings, for example—just go back to the WSPEC file and change the values you want altered.

WSPEC Entries

The following is an explanation of each of the spec entries:

Lines per page:66◀

This means that the paper you are going to print on will have 66 printing lines per page. Some paper you choose may have fewer and some more. A typical letterhead paper is 11 inches long and has 66 lines. If you are printing on a sheet with different dimensions than these, you will need to determine the lines per page it has and enter that number instead of 66. Six lines per inch is the general rule.

Line length:80◀

This is not the number of characters wide your printer is; it is the character width of the paper you are printing on. An 8½-inch-wide piece of paper is 85 characters wide, which means 10 characters per inch. Alter the number accordingly if you are printing on wider paper.

Top margin:3◀

This refers to the number of lines there are between the header and the text. It defines where you wish the text to start printing on each page.

Bottom margin:3◀

This refers to the number of lines there are between the footer and the text. It defines where you wish the text to stop printing (should it fill a full page) on each page.

Left margin:8◀

This refers to the number of spaces you wish the left-hand margin to be from the left edge of the paper.

Right margin:4◀

This refers to the number of spaces you want the right-hand margin to be from the right edge of the paper. When you specify a justified right-hand margin, as we explain later, the margin for every line will be exactly four spaces from the edge. When you specify a ragged right edge, however, this means the minimum length of the margin for any line will be four spaces from the edge. This means the *average* margin will be more than four spaces because lines will be broken ahead of any word that would put them past the four-space limit. You can experiment with any document you want to print and adjust the margins until you like the way they look.

Printing lines per page:62◀

This is the number of lines your printed page has in total, including its header and footer. If it is the same as the number of lines per page, in this case 66, then the header and footer will appear right at the very top and bottom edges of the page. It is best to set the number of printing lines three or four fewer than the number of lines per page. You will not have to be quite so exact when you line your paper up to start, and printed copy looks better with a little bit of spacing above the header and below the footer.

Header (%D=Date,%T=Time,%P=Page #):◀
 %D Page %P◀

You can have date, time of day, and page number in the header. The command for each is shown. The way you set one up to print is illustrated by the date. Notice that you put in the percent sign followed by the letter D and then allow enough spaces for the date to appear. If you want time of day as well, you enter %T and allow enough spaces for the time to appear. Time is shown in hours, minutes, and seconds, as 08:23:48, so you should press the space bar eight times after the %T. Notice that there is a carriage return symbol at the end of the header line and one also at the end of the following line. If you add time or page number commands to the header, be sure to put in the carriage return symbol at the end of the line, after leaving enough blank space for all of the entries. There should be only *one* carriage return symbol, at the end of all the entries—you do not insert one after each entry.

The header takes up one line. Remember that the Model 100 or M-10 screen has only 40 characters, so it will take two lines of screen type to make up a one-line header that stretches across a sheet of paper 80 characters wide.

Left-hand margin for header: insert spaces at the beginning of the header to move it right so it will match the left-hand margin desired.

For instructions on setting up a multiline header, see item 31 in Sec. 5, below.

```
Footer:◀
      PCSG, 11035 HARRY HINES BLVD
#207, DALLAS, TX 75229 214-351-0564◀
```

The rules for setting up the header also apply to setting up the footer. There is really no difference between the two except one is at the top and the other at the bottom of the page. You can have the date, time of day, or page number in any combination in either location or both, along with whatever other information you wish to print. And the rules for setting up a multiline header also apply to setting up a multiline footer. Notice in the header example that you must allow three spaces between %P and the carriage return symbol so that the page numbers can appear. Also note that the left-hand margin for the footer is established in the same way as it is for the header.

```
Header switch:1◀
```

This is exactly what it says: It is a switch that lets you turn off the header you have in the WSPEC file. The number 1 means on and 0 means off. If you are formatting an article and you do not want a header on any of its pages, simply go to the WSPEC file and change the 1 to a 0. Use a 1, not a lowercase L or an uppercase i.

```
Footer switch:1◀
```

This is just like the header switch. 1 is on; 0 is off.

```
Format;N=Normal,J=Justify,C=Center:N◀
```

If you want the entire document you are printing to have a justified right-hand margin, you change the N to J. N or "normal" means a ragged right edge. If you want the entire text centered, you substitute

a C for the N. You should experiment with all these variations so you will be familiar with the capabilities.

Line spacing:1◀

This signals a mechanism that controls the amount of paper to be advanced at the end of each printed line (called "line feed"). You have several choices of signal numbers. The following explains the effects of the different signals:

- A. Single spacing. :1◀ advances the paper one line at end of each line of print (otherwise the printer would just keep printing on the same line).
- B. Double spacing. :2◀ advances the paper two lines at end of each line of print.
- C. Multiple spacing. :3◀, :4◀, or more advances the paper the number of lines the signal says at the end of each line of print.
- D. No line feed except after carriage return. :0◀ is an embedded command and will be explained later. Do not use it in the WSPEC file, only when creating special formats. If you put it in the WSPEC file, it will advance the paper only where there is a ◀ in the text, and thus you will need such a symbol at the end of each line to avoid jamming up the printer.

Extra line on paragraph?(0=no,1=yes):0◀

An attractive format is to have an extra blank line fed between paragraphs. Some people like this, but others do not. This switch saves you having to put in an extra carriage return to get the skipped line.

Start printing at page:1◀

Usually printing starts on page 1 of a document. But if you have been editing and making changes after page 4 only and now need to print only from page 4 on, you change the 1 to a 4. SCRIPSIT 100 and PRNT10 will output the first three pages to the screen, and start printing at page 4.

Last page to print:E◀

E means "end." If you want the printer to stop before the last page, you substitute the number of the last page you want printed for the E.

Number of beginning page in document:1◀

Usually documents begin on page 1. But sometime you may find yourself starting a new file for a document being continued from another file or perhaps one that was saved to a cassette. The new file will be a continuation of the previous one and will need to start where the other left off. So, for example, if the new one must start at page 6, you substitute a 6 for the 1.

Number of copies:1◀

If you want more than a single copy of the document printed, merely substitute for the 1 a number telling the machine how many. The printer will continuously print multiple copies of the same document, even if it is many pages long. The screen will show you which copy is being printed, for example,

Printing #6 of 20

Pause between pages? (1=yes, 0=no):0◀

If you are having to insert pages by hand and it is a multipage document or multiple copies of the same document being printed, you will need the printer to pause between pages. You then go to the WSPEC file and change the 0 to a 1 for this specification. After each page is printed, the printer will stop and the screen will say,

Press ENTER when printer ready

You can then insert your new sheet and then press ENTER or the space bar or any key. The printer will continue with the next page of your document.

Feed page at end?(0=no, 1=yes):1◀

When printing continuous forms, with some printers it is necessary to feed the paper out after the printing is completed in order to tear the paper off. You must get the printed copy past the tractor feeds or on some printers past the cover or tear bar. SCRIPSIT 100 and PRNT10 automatically go to the top of the next page whether you have this

feature switched on or off. But if you need to tear the paper off after printing and your printer restricts you, then use it.

Output to: ◀
LPT: ◀

The abbreviation "LPT:" stands for "line printer," which is the most common output device. You can output to other devices if you desire, though. Substituting LCD: causes the computer to print to its screen only. CAS: saves to a cassette. To print to a serial printer you will need to use COM: followed by the correct transmission configuration obtained from your printer's manual, for example, COM:67E1E (use the RS232 port). This redirectable output is useful for people with special needs. Do not save your documents this way unless you have a special purpose in doing so. Other devices or file names are also supported by this redirectable function. Read your Radio Shack Model 100 or Olivetti M-10 manual for more information.

SCRIPSIT 100 and PRNT10 are specially constructed to facilitate communication to other computers. Using the COM: signal with the proper configuration (taken from your computer manual), you can use the program through the RS232 port to transmit files from your own Model 100 or M-10 to virtually any other computer. (To do this there must be some sort of terminal program in the other computer.) But the DISK or DISK10¹ program explained in Chap. 11 of this book is a better way to communicate with other computers since it requires no special protocol or procedure.

Setup string: ◀

Some printers require embedded commands to control print characteristics. And with most computers you would have to embed these commands in each document you prepared. The commands would be global, meaning that they would be for the entire document, and generally by means of them you control such features as print density, font, etc.

But for your Model 100 or M-10, rather than enter such global commands in the text, simply enter the control characters after the colon on the "Setup string:" line of the WSPEC file.

You will have to consult your printer manual for the necessary control symbols. But insofar as your Model 100 or M-10 goes, remember to

¹ DISK and DISK10 are different versions of the same program; see the beginning of Chap. 11 for an explanation of the distinction.

always put control P (hold down the CTRL key and tap P) before putting in the printer's control symbol. If you are embedding more than one command, do a control P before each control code, e.g., control P before printer's control H, control P before printer's control G, etc. (Some printer control sequences include normal rather than control characters. In that case you would enter like this: control P, control H, P, G, etc.)

This string of control codes will be sent to the printer every time a document is printed. The feature is exactly equivalent to embedding a printer command string at the beginning of each of your document texts. Later in this chapter we will discuss printer control codes in more detail.

4. Embedded Commands

Now you have gone through a typical formatting sequence using only the specification file, and you have made some changes of your own inside the spec file to create a format of your own design.

Even though there are limitations to formatting by means of WSPEC alone, for some users this is the way they will always want to format because it is the ultimate in simplicity. If all you need is a way to set up your material on a printed page with the entire document being formatted in the same manner, then the spec file is all you will ever need to learn.

How to Have Variety

But SCRIPSIT 100 and PRNT10 also have a wonderful device built into them that lets you change the way *parts* of any document are formatted so they will look different than the rest of the document.

This device is a series of commands that are embedded by you in the article you are writing. These commands take over and change or justify the margins, center the text, or make other changes on the piece of text following them until you embed other commands that introduce new specifications or reestablish those called for in the WSPEC file.

This embedded command mechanism lets you do many things to your article and lets you have the various features that we listed at the beginning of the chapter available to you easily and simply. Notice the paragraph above. By using embedded commands, we made the right edge ragged and we changed the width of the left-hand margin. Then for this paragraph we restored the normal specs.

SCRIPSIT 100 and PRNT10 Embedded Command Summary

The list below is a summary of all of the embedded commands; in Sec. 5 we will explain how to use some of them to achieve specific formatting variations.

- .Ln Set left-hand margin to n (n stands for any number of spaces).
- .Rn Set right-hand margin to n.
- .J Justify right-hand margin.
- .N Ragged right edge.
- .C Center all text.
- .Mn Start a new page unless n more lines will fit on the current page (M stands for minimum).
- .Un Move paper up n lines (skip lines).
- .P Start a new page (chapter end).
- .Fn Footer control: 0 = no; 1 = yes.
- .Hn Header control: 0 = no; 1 = yes.
- .Sn Line spacing control: 0 = no line feed except after carriage return; 1 = normal single spacing; 2 = double space; 3 = triple space.

Some Rules on How to Use the Embedded Commands

Before we give you some examples of how to use each of the commands to do specific formatting variations, you need to understand some of the rules by which the commands work.

- A. An embedded command will not show up visually in your printed article, although it does appear on the computer screen.
- B. Even though the command takes up character spaces and a line on the screen, it consumes no space in the printed article.
- C. Each embedded command must be on its own line. In other words, any entries before such commands must be ended with carriage return symbols. Further, at the end of each embedded command must go a carriage return symbol (press ENTER).
- D. Each command must have the . in front of it as part of the command.
- E. Each embedded command must be set all the way to the left of the screen. In other words, there must be no space in front of the . that begins each command.

- F. An exception to these rules are certain embedded commands for your printer which will enable it to produce underlining and a number of other special features. We will discuss their use in detail later (see the material on printer control codes in item 36 of Sec. 5 below, near the end of this chapter).

Study carefully the following examples of how to do special formatting variations. There are special rules that apply to each situation.

5. Examples of How to Do Special Formatting Variations

1. Centered Headings

You can center a single-word heading or a complete sentence. In the following illustration note that the .C command centers the text that follows and the .N command returns the format to the ragged right edge.

Remember that you:

- Type your last paragraph and press ENTER (carriage return).
- On the next line put a . and the command, then press ENTER (carriage return).
- On the next line type the words the command will be handling. End that by pressing ENTER (carriage return).
- On the next line put a . followed by the command letter to restore the format that you want.

Example: What the screen looks like:

```
.C◀
A CENTERED HEADING◀
.N◀
```

Here's how it looks on paper:

A CENTERED HEADING

2. Centered Text

Centered text is set up exactly like a centered heading, there are just more words and sentences involved. It often creates an unusual look.

Example: What the screen looks like:

```
.C◀
Centered text is used to create a
decorative pattern to the words. It is
sometimes appropriate on dinner party
menus or on announcements.◀
.N◀
```

Here's how it looks on paper:

Centered text is used to create a decorative pattern
to the words. It is sometimes appropriate on dinner party
menus or on announcements.

To center the entire document, go to the WSPEC file and change the "Format" signal to C as discussed in Sec. 3 of this chapter above.

3. Justified Right-Hand Margin

This produces a right-hand margin in which every line is exactly the same length.

Example: What the screen looks like:

```
.J◀
The .J changes the format from ragged
right edge to justified. Notice that
the margins are the same. The .N at the
end changes it back to ragged edge.
Justified edges are useful for
preparing columns for newsletters, for
brochures, or even for manuals.◀
.N◀
```

Here's how it looks on paper:

The .J changes the format from ragged right edge to justified. Notice that the margins are the same. The .N at the end changes it back to ragged edge. Justified edges are useful for preparing columns for newsletters, for brochures, or even for manuals.

4. Print Multiple Copies

You cannot do this with embedded commands, even though it seems like you should be able to. Go to the WSPEC file and change "Number of copies" to the quantity you desire. (See Sec. 3 above in this chapter.)

5. Numbered Pages at Top, Bottom, or Both

Likewise, this too cannot be done by embedded commands; rather you must make the appropriate designation in the Header and/or Footer specification of the WSPEC file. (See Sec. 3 again.)

6. Set Right- and Left-Hand Margins to n

There are two possibilities here:

- A. For documents in their entirety, the specification file (WSPEC) allows you to set the left- or right-hand margins to any dimension you like. (See Sec. 3 above.) You should experiment and select the margin settings that appear the most attractive to you.

Also, you can decide on particular margin widths depending on how you need to stretch the copy to fit the printed pages better. The reason for formatting is for attractiveness. Sometimes when you print out a letter, it might take up two pages and only four or five lines of a third. You can play with smaller margins and maybe get the entire letter on two pages and still have it look good. Or perhaps you can specify larger margins and have it fit on three pages nicely with more balance. Experiment with the document. Make some print runs, modify the margins, and create the best effect for the occasion.

- B. However, by means of embedded commands you can also set the margins differently than called for in the WSPEC file right in the middle of the letter or article you are writing. This creates variety in the format.

Example: What the screen looks like:

```
.L16◀
.R8◀
Setting the margins differently in the
body of your text has many
applications. Some we illustrate later
under other headings. It can serve to
set off an important passage or to
emphasize a paragraph.◀
.L8◀
.R4◀
```

Note that .L8 and .R4 at the end return the left-hand and right-hand margins back to their normal widths.

Here's how it looks on paper:

Setting the margins differently in the body of your text has many applications. Some we illustrate later under other headings. It can serve to set off an important passage or to emphasize a paragraph.

7. Start Page Numbering at Your Choice of Numbers

Although it might seem that this could be done by embedded commands, it is entirely controlled by making a change in the WSPEC file. (See Sec. 3 above.)

8. Title Page

There are two ways to do a title page, both of which involve embedded command codes and WSPEC together. The first is to do a new and separate text file. This eliminates having to make special adjustments for page numbering. Instructions:

1. Go to the Main Menu, and with the cursor on WSPEC, press ENTER.
2. Change "Header switch" to 0, and exit to the Main Menu (press F8). (Omit this step if you want the header on the title page.)
3. With the cursor on TEXT, press ENTER.
4. Name the file (six letters), and press ENTER.
5. Set up like the example which follows.

Example: What the screen looks like:

```
.U25◀
.C◀
SCRIPSIT 100◀
AN EASY TO USE◀
WORD PROCESSING PROGRAM◀
FOR THE TRS-80 MODEL 100◀
.F0◀
```

.U25 moves the paper up 25 lines, .C centers all the text that follows, and .F0 eliminates the footer if you do not want it.

What it looks like on paper: Using exactly the command sequence shown above, you will get the following centered exactly on your page.

SCRIPSIT 100
AN EASY TO USE
WORD PROCESSING PROGRAM
FOR THE TRS-80 MODEL 100

The second way is to do the title at the beginning of the document, after making some adjustments in WSPEC. Instructions:

1. Go to WSPEC.
2. Change "Number of beginning page in document" to 0.
3. Change "Start printing at page" to 0.
4. Change "Header switch" to 0.
5. Go to the beginning of your document.
6. Set up like the example below.

Example: What the screen looks like:

```
.U25◀
.C◀
PRNT10◀
AN EASY TO USE◀
WORD PROCESSING PROGRAM◀
FOR THE OLIVETTI M-10◀
.F0◀
.H1◀
.P◀
.F1◀
```

.U25 moves the paper up 25 lines, .C centers the text that follows, .F0 eliminates the footer if you do not want it, .H1 restores the header for the next page, .P starts the new page, and .F restores the footer for that new page.

What it looks like on paper: Exactly the same as shown above for the first method (although the Olivetti names will appear rather than the Radio Shack names).

9. Title Page in Middle of Document

Perhaps you might want a title page in the middle of a paper you are writing. If you are ending a chapter and want a title page to follow before the text for the next one begins, you set it up as follows:

Example: What the screen looks like:

```
.H0◀
.P◀
.U25◀
.C◀
THE NEW CHAPTER◀
OF THIS STORY◀
.F0◀
.H1◀
.P◀
.N◀
```

.H0 eliminates the header, .P starts a new page, .U25 moves the paper up 25 lines, .C centers the text that follows, .F0 eliminates the footer, .H1 restores the header for the next page, .P starts the next page, and .N returns the text to a ragged right edge.

What it looks like on paper:

THE NEW CHAPTER OF THIS STORY

10. Memo Format (Optional Line Space between Paragraphs)

This is accomplished entirely through the WSPEC file, not by means of embedded commands. The "Extra line on paragraph" signal when set at 1 causes a line to be skipped after each carriage return. This creates the familiar memo format as follows:

TO: Jim Johnson

FROM: Tim Smith

SUBJECT: Software for Model 100 or M-10

I am impressed with the software programs from XYZ Corp. Let's get their programs in every branch office.

Find out what new developments they have coming for the Model 100 or M-10.

11. Standard Block Letter Format

The standard block letter has the address flush to the left and there are no skipped lines between each line of the address. You can set this up in either of two ways, only the second of which involves embedded commands.

- A. Go to the WSPEC file and make sure the "Extra line on paragraph" signal is set to 0. If you wish to have the attractive skipped line between paragraphs, you must put in an extra carriage return between each of them.
- B. Another way is to put the WSPEC "Extra line on paragraph" signal at 1. Then before you type the address, embed a .S0 command, and before the last line of the address embed a .S1. This way you turn off and then on again the attractive automatic skipped line between paragraphs.

Example: (We illustrate the second method. This would be for a long letter with many paragraphs which you want separated with an automatic skipped line.) What the screen looks like:

```
.S0◀
Mrs. R. W. Smith◀
National Corn Starch Company◀
221 E. Freemont St.◀
.S1◀
Dallas, TX 75229◀
Dear Mrs. Smith:◀
Thank you for your letter of ...
```

What it looks like on paper:

Mrs. R. W. Smith
National Corn Starch Company
221 E. Freemont St.
Dallas, TX 75229

Dear Mrs. Smith:

Thank you for your letter of . . .

12. Indent Complete Paragraphs

To indent an entire paragraph you use only a left-hand-margin embedded command and leave the right-hand margin to be commanded by the spec file.

Example: What it looks like on the screen:

```
.L20◀
Indenting an entire paragraph is often
important in a letter or article to
draw attention to a special subject or
to create a distinction between a
certain paragraph and other material in
the article.◀
.L8◀
```

.L8 restores the standard left-hand margin.

What it looks like on paper:

Indenting an entire paragraph is often important in a letter or article to draw attention to a special subject or to create a distinction between a certain paragraph and other material in the article.

13. Headers and/or Footers

Headers and footers are prepared and kept entirely in the WSPEC file, and how to do so is explained back in Sec. 3 of this chapter. However, you can control whether headers or footers appear on particular pages or not by means of embedded commands. Those procedures are explained in other examples given in this section.

14. Date or Time in Header or Footer

You can have the date or the time of day or both in either the header, the footer, or both. This is done easily in the WSPEC file, as explained back in Sec. 3 of this chapter, and does not involve embedded commands.

Having the current date appear on your letter or paper as you print it is wonderful since it provides you and other readers of the document with an easy reference to when it was composed. (Be sure to set the date and time correctly following the procedure described in your Model 100 or M-10 manual.)

Putting the time of day on your correspondence or reports might not always be appropriate. It is easy to do, but you should be certain it fits the subject matter and the circumstances of the document you are preparing. One place where time of day in the header makes sense is when you are printing out numerous redrafts during the same day. The feature can then be a lifesaver in helping to keep earlier versions from being mixed up with later ones.

15. Chapter End Feature

This is a convenient mechanism that lets you end one topic and, by embedding a single command, start a new one at the top of the next page. The paper will advance, print the footer, and begin printing again at the top of the new page. Instructions:

- A. End your text for the page and press ENTER (carriage return).
- B. On its own line at the extreme left type .P, then press ENTER (carriage return).

16. Document End Feature (Top of Page)

The SCRIPSIT 100 or PRNT10 program automatically ends your document properly without you having to embed any command to effect it. At the end of your document, even if it is completed in the middle of a page, the paper will advance to the bottom of the page and print the

footer. It then automatically moves the paper to the top of the next page.

17. Optional Extra Page at End of Document

This feature is controlled through your WSPEC file, not by means of embedded commands. At the end of your document, after the paper is advanced to the bottom of the page and the footer is printed, it causes the paper to continue feeding out. (With some printers you need the paper advanced to get past the cover or in some cases the feed mechanisms.) It feeds out a full page so you can tear off what you have just printed. It then advances the paper exactly to the top of the next page so that you are ready to print again without having to align the paper.

18. Justified and Ragged Edges in Same Document

The use of embedded commands lets you have a variety of combinations of ragged and justified margins. Justified text in the middle of a ragged-edge document can emphasize a paragraph that is outstanding.

Example: What the screen looks like:

```
.L24◀
.R16◀
.J◀
Setting new right- and left-hand margins and
combining them with the command to justify can
create another interesting effect. Note
that at the end of this paragraph we
give the command to return to the
margin width given in the spec file, along with a
ragged-right-edge command.◀
.L8◀
.R4◀
.N◀
```

What it looks like on paper:

Setting new right- and left-hand margins and combining them with the command to justify can create another interesting effect. Note that at the end of this paragraph we give the command to return to the same margin width given in the spec file, along with a ragged-right-edge command.

The .N command causes the text to go back to a ragged right edge. Notice that we had to call out the left- and right-hand margin

values even though they are the same as in the spec file. Once you change margin values you have to redefine them every time you want them to change again.

19. Pause between Pages

This feature is easily accomplished or changed by making a quick adjustment in the WSPEC file, not by means of embedded commands. See Sec. 3 earlier in this chapter for a discussion of it.

20. Skip Lines Feature

The .Un (n stands for “number of lines”) command lets you move the paper forward (= up) however many lines you want. This allows you to create a block of blank lines in the middle of your article if you should need them—for example, to paste in an illustration.

We also used the .Un command when we did our title page to move the paper forward to where we wanted the title printed.

21. Line Spacing (Double, Triple, or More)

If you want your entire document to be double-spaced, go to the WSPEC file and change the signal for “Line spacing” to 2. Change to 3 for triple spacing and to 4, 5, etc., for more. For double spacing, your entry in WSPEC should look as follows:

```
Line spacing:2◀
```

If you want only parts of your document double-, triple-, or more-spaced, however, you must use embedded commands.

Before any text that you want double-spaced, enter .S2 (on its own line). For triple spacing enter .S3, and so forth. At the conclusion of the double- or triple-spaced text, enter .S1 (on its own line) to restore to the normal line spacing.

Example: What the screen looks like:

```
.S2◀
Double spacing or even triple spacing
in the middle of a single-spaced
document is extremely useful when doing
drafts. It is so practical when you
have a part you know you want to rework
in the body of an otherwise finished
article.◀
.S1◀
```

What it looks like on paper:

Double spacing or even triple spacing in the middle of a single-spaced document is extremely useful when doing drafts.

It is so practical when you have a part you know you want to rework in the body of an otherwise finished article.

22. Multiple Margin Settings in Same Document

You can have as many margin settings as you like. Each place you would like to see new ones, simply insert new .L and .R commands in the manner explained earlier.

23. Favorite Format Spec File (No Setting Each Time)

The WSPEC file alone allows you to set up your favorite format for most of the memos and articles you write and to keep it as your standard format without resorting to embedded commands for each document. Here are some tips to help you set up a favorite format in the easiest way.

- A. Study the explanation of the WSPEC file given in Sec. 3 of this chapter, giving careful attention to the steps required to print a document using a favorite format.
- B. Experiment and find the format you like and will use most often.
- C. Print out the WSPEC file for that format. No need to use SCRIPSIT 100 or PRNT10 for this. Just enter WSPEC from the Menu, go SHIFT/PRINT, set the line length for 40, and press ENTER.
- D. You will have a print of the WSPEC file the way it appears on the screen with the exception that the little carriage return triangles will not be shown.
- E. Because the carriage return locations are so important, draw them in on the printout as they appear on the screen.
- F. Keep this printout for reference, and if you make changes in the format, use it to remind yourself of how to reestablish the original specs when you want them.

24. Underlining and Other Printer Features

Most printers require that you use embedded commands in order to do underlining, double-width-size (expanded) type, or other special printer features. (See item 36 below for a discussion of global printer commands.)

The Model 100's or M-10's print function is programmed to ignore such embedded commands, however, and instead of doing the underlining or whatever you have commanded, just print out the command itself complete with the control sign (or caret symbol ^). (See the section on printer control codes in item 36 below.)

But the SCRIPSIT 100 or PRNT10 program corrects this inadequacy of the Model 100 and M-10 and delivers these codes to your printer so that the task you want is accomplished. Whenever you embed a control code you must first do what is known as a "control P": Hold down CTRL and tap the letter P at the same time. Then type in the control character you are embedding. Sometimes, after you embed a control character another character may be called for that is not a control character. In that case you do not need another control P before embedding it. If your printer's manual called for an N, for example, you would merely tap the character N.

As an example of how to use control P for a specific printer, let us take the Riteman Inforunner dot matrix printer, whose manual tells us that the control sequence required to cause it to print emphasized characters (or correspondence characters) is ESC E. To embed this command on the Model 100 or M-10, in TEXT, you simply put the cursor on the first character where you would like the emphasized print to start. Since ESC is a control character, you must first hold down the CTRL key and tap the P key. Then press ESC. As ESC is embedded, a caret symbol with a left bracket (like this: ^[) will appear on the screen. Next just type the letter E. These codes will then be sent to your printer when you print out with SCRIPSIT 100 or PRNT10.

Keep in mind that every printer has different codes for its printing features, and that, unfortunately, the manuals which accompany those machines are very often confusing to the untrained or the neophyte computer user. To help lessen these difficulties, we will discuss two printers here: the Radio Shack DMP 100 dot matrix printer and the Smith Corona TP-1 daisy wheel. We have chosen them because they are both inexpensive and extremely reliable units that are popular. They are also logical choices to use with the Model 100 or M-10.

The DMP 100 is a reliable dot matrix printer that gives you a print speed of 45 characters/second. The Smith Corona is a quality instrument that may become the most successfully sold daisy wheel printer

ever. It provides correspondence quality at 12 characters/second (about 150 words/minute).

The DMP 100

In regard to underlining:

- A. You put in embedded codes before and after the word or words that you want underlined.
- B. Before the first word of a group that you want underlined, you hold down the control (CTRL) key and tap the letter P at the same time (the CTRL key is used like a typewriter's shift key) for a control P. Notice that nothing appears on the screen.
- C. Then do a control O (hold down CTRL and tap the letter O). In front of the word you are underlining now will appear the caret symbol and the O (^O). It must be right next to the word without a space, like this: ^Oword.
- D. A word of caution: Note that above the number 6 on your keyboard is the control or caret symbol ^. When you press SHIFT and 6, the ^ will appear on the screen. But if you use this sequence only, it will not embed. It will just be printed out. You must use the CTRL key to produce the embedded code.
- E. At the end of the word or group of words to be underlined, press CTRL P, then CTRL N. This will appear as ^N. The entire group of words to be underlined will look on the screen like this: ^Owords to be underlined^N.
- F. Remember that even though the code takes up space on the screen, it will not appear on the paper, nor will it affect your spacing.
- G. When you print on the DMP 100 using the SCRIPSIT 100 or PRNT10 program, the words which you set off with ^O and ^N will be underlined.

Another typographical feature the DMP 100 can produce is the double-width expanded character. It does this by setting off the words to be printed at double their normal widths between another set of embedded codes.

One problem with using double-width characters in a format program is that under normal circumstances such characters upset the way the text looks in terms of line length, and so they cannot be used in the body of the document. They can be used on title pages, however, and for centered headings. You will need to experiment to see how using the feature affects the spacing, and perhaps make adjustments to the margins with your .L and .R embedded commands.

To produce double-width characters:

- A. Follow the same procedure as for underlining except that, at the beginning of the word or words to be expanded, do a control P, then press the down arrow, and at its or their end do a control P, then press the up arrow.
- B. When you do a control P followed by the down arrow, you will get ^_ on the screen in front of the words you are expanding.
- C. When you do a control P followed by the up arrow, you will get ^^ on your screen.
- D. Therefore, words to be expanded will look this way on your screen: ^_words to be expanded^^.
- E. An error you can make when doing this is to use CTRL when you press the down arrow or the up arrow. The down and up arrows are already control characters, and you do not need to press the CTRL key in conjunction with them.
- F. Experiment. You will become quite proficient at working with the expanded characters and their modified margin requirements.

The Smith Corona TP-1

Underlining is the only added feature that is available with this printer. Daisy wheels do not do expanded characters. To underline:

- A. Follow exactly the same procedure as for the DMP 100, only use a different code.
- B. The code for the TP-1 is as follows: You start underlining with CTRL P followed by CTRL Y. It will look on the screen like this: ^Y.
- C. You stop the underlining with *exactly* the same command, CTRL P, CTRL Y, that you started it with. A group of words to be underlined will look like this: ^Ywords to be underlined^Y.

25. Redirectable Output

This feature is easily handled through the WSPEC file, not by means of embedded commands. See Sec. 3 earlier in the chapter, where the "Output to:" format spec is discussed.

26. Columns in Formatted Document

Often you will have reason to arrange information in columnar fashion in the middle of a formatted report. This can be set up using the following procedure. Things to know:

1. First you need to understand how the TAB key functions. When you

press TAB, the cursor moves across eight spaces. Therefore, if you have an 80-space field (or paper width), you have 10 TAB places.

2. Check your left- and right-hand-margin settings in the WSPEC file and calculate how many TAB places you have left after your margins are subtracted. For example: If your left-hand margin is set at 8 and your right-hand margin at 4, you have eight TAB places left to work with. If your left-hand margin is 16 and your right-hand margin is 8, on the other hand, you have seven TAB places to use in setting up columns.
3. Remember that on your screen the 10 TAB places, which are for one 80-character line on paper, take up exactly two lines of 40 characters each.

Now, here is how to set up columns:

- A. Place a carriage return symbol at the end of the preceding non-columnar text by pressing ENTER.
- B. Type in .L0 and press ENTER. Then type in .R0 and press ENTER.
- C. Press the TAB bar however many times you need to align the left edge of the first column with the left-hand margin of the regular text above. This will keep the good look of your format.
- D. Type in your labels, remembering to keep the letters or numbers at seven characters or less, and after each entry use the TAB key to move you to the next position across the page for the next column.
- E. Leave position 10 blank to correspond with the right-hand margin (or whatever position will do so), but be sure to always put a carriage return symbol there by pressing ENTER.
- F. Keep entering all the information you are putting in columns following the procedure just explained. Remember to leave the same positions blank and to always put a carriage return symbol in the last position.
- G. After the last row of entries and carriage return, restore the margins of your article with the .Ln (n = number of spaces) and .Rn commands, each on their own lines.

Example: What the screen looks like:

```
.L0◀
.R0◀
      YEAR  JAN   FEB   MAR
    APR  MAY  JUNE  JULY◀
      84   2455  7688   4322
    6544  5706  6557  7777◀
      85   6754  8765   3456
    3422  6787  7898  9087◀
.L8◀
.R4◀
```

What it looks like on paper:

YEAR	JAN	FEB	MAR	APR	MAY	JUNE	JULY
84	2455	7688	4322	6544	5706	6557	7777
85	6754	8765	3456	3422	6787	7898	9087

27. Width up to 132 Characters

This feature is easily accomplished or changed by making a quick adjustment in the WSPEC file and does not use embedded commands. See Sec. 3 of this chapter.

28. Set Top and Bottom Margins

This feature is easily accomplished or changed by making a quick adjustment in the WSPEC file and does not involve embedded commands. See Sec. 3 earlier in this chapter.

29. Optional Header or Footer on Certain Pages in Same Document

If you want the header, the footer, or both eliminated from an entire document, go to the WSPEC file and change the header and/or footer switches to 0. (See Sec. 3 earlier in this chapter.) However, if you want either or both eliminated only from selected pages, you can easily enter a command that will do that task for you.

Different rules apply for different situations. The way SCRIPSIT 100 or PRNT10 works is that it prints the header on a page before it looks at that page. Therefore, to eliminate the header on the first page, you must go to the WSPEC file and enter 0 at "Header switch." Then early in the document enter a .H1 command. This turns the header back on for page 2 of the document, and for every page thereafter. Instructions:

1. Change the header switch in the WSPEC file to 0.
2. Somewhere in the document, close to the beginning, put in a .H1 embedded command. (Remember to put it on its own line.)

To eliminate the header and/or footer on particular pages other than the first, you can leave the switches in the WSPEC file at 1. In regard to the header, you must enter .H0 somewhere on the page preceding the top of the one on which you do not want it to appear. You will

generally know where to put it because you will know which subject matter you do not want started with a header. If you see you miscalculated on your first printout, adjust accordingly and print out again.

To eliminate the footer, .F0 must be entered on the same page where it is not wanted. Be sure to insert a .F1 command after the text for that page so you will restore the footer to the remaining pages.

30. Search and Replace Technique

Some word processing programs have a search and replace feature that is a real help. One was not incorporated into SCRIPSIT 100 and PRNT10, however, because there is a technique that accomplishes almost exactly the same effect using some of the built-in features of the Model 100 or M-10.

Search and replace is used when you need to go through a document and remove all references to one word, name, or phrase and replace it with another word, name, or phrase. It is used primarily when you have a letter or report that was prepared for one company or person or about one city and you wish to use it in its totality in reference to some other company, person, or city. Here is how to do it:

- A. After you have called up the file containing the report on the screen, type on any blank area, perhaps at the top, the word or name you will be substituting for the old one.
- B. Press F7 (select) and then the appropriate arrow key to block out the word or words in reverse video.
- C. Press F6 (cut). This removes the word or phrase from the screen and holds it in the paste buffer.
- D. Press F1 (find) and the prompt "String:" will appear at the bottom. Type in the word, phrase, or name you want to find for replacement.
- E. Start with the cursor at the top of the file. (Pressing CTRL and the up arrow gets you there immediately.) Now press ENTER and the cursor will appear at the beginning of the word or phrase.
- F. Delete that word or phrase (press SHIFT/DEL) and then press PASTE. The replacement word or phrase will be substituted instantly.
- G. Press F1 again and the word you are seeking will appear at the bottom of the screen again. Press ENTER and the cursor will then be on the first letter of the next location.
- H. Repeat step F and continue until the prompt "No match:" appears at the bottom of the screen.

31. Multiline Header or Footer

You can only do this if your printer is like the DMP 100 and automatically wraps when it gets to the eightieth character position. You simply run the footer on to a maximum of 240 characters, but without pressing ENTER until the very end. As far as SCRIPSIT 100 or PRNT10 is concerned, the footer is on a single line, but the printer will wrap it onto a second or third. This will confuse the line counter in SCRIPSIT 100 and PRNT10, so you must make an adjustment by reducing the "Lines per page" spec by however many extra lines your footer takes. For example, if your footer occupies two lines rather than one, reduce "Lines per page" from 66 to 65.

32. Outline Technique

Often the presentation of facts or ideas in an outline form is an excellent communication device. Outlines are very easily accomplished using the SCRIPSIT 100 or PRNT10 program's embedded commands. They are set up entirely using only the left-hand-margin embedded command .Ln (n = number of spaces).

Example:

```
.C◀
CURRENT CORPORATE CRISIS◀
.N◀
I. Introduction◀
.L14◀
A. Background◀
B. Need◀
.L20◀
1. Problems◀
.L25◀
a. Financial◀
b. Technical◀
.L20◀
2. Resources◀
.L8◀
II. Solutions◀
.L14◀
A. In-house◀
B. Outside◀
.L20◀
1. Consultants◀
2. Contacts◀
.L8◀
III. Conclusions◀
.L14◀
A. Consequences◀
B. Prognosis◀
.L8◀
```


What it looks like on paper:

CURRENT CORPORATE CRISIS

- I. Introduction
 - A. Background
 - B. Need
 - 1. Problems
 - a. Financial
 - b. Technical
 - 2. Resources
- II. Solutions
 - A. In-house
 - B. Outside
 - 1. Consultants
 - 2. Contacts
- III. Conclusions
 - A. Consequences
 - B. Prognosis

33. Interrupt, Resume Printing

With this feature of your Model 100 or M-10, you can stop the printer temporarily without any loss of characters at any time while you are printing any document that is being formatted by SCRIPSIT 100 or PRNT10. Just press the PAUSE function key. The printer will continue to print the line it is on, but will stop when it concludes that line. When you are ready to resume printing, press the PAUSE key again. If you need to abort for any reason (skewed paper, misspelled words, or a malfunction):

- A. Simply press SHIFT/BREAK. The screen will say,

Printer problem?

- B. Press SHIFT/BREAK again and the screen will say,

Ok

- C. You can press F4 (run) and the program will run again. In other words, it will show the files and say,

Which file to print?

- D. Or, you can press F8 (menu) and go back to the Main Menu.

34. Start/Stop at Designated Page

With SCRIPSIT 100 and PRNT10 you can start printing at any page in your document and stop at any page you choose. You could print only a single page from the middle if you chose to. This technique is handled entirely by the WSPEC file and is explained in Sec. 3 earlier in this chapter.

35. Suppress Printing of "Orphan Lines"

Occasionally, in an article you are preparing, you may have a section you do not want to appear on the bottom of a page alone "like an orphan." Most of the time this will not matter, but sometimes there is material (for instance, an introductory line) that just does not look good there or that needs to be with the material on the next page to make sense. Therefore, SCRIPSIT 100 and PRNT10 have a "conditional" command.

The command is .Mn, where n is the minimum number of lines you want to appear from the point at which it is entered to the end of the page. If there is too little space for the lines to fit, the program will start a new page. If there is enough room, it will continue printing on the same page.

36. Global Printer Command Codes

With SCRIPSIT 100 and PRNT10 you can enter printer control commands directly into the WSPEC file under "Setup string:." This is for embedded commands that will affect the entire document, such as print characteristics like density or font. See the discussion of how to do so back in Sec. 3 of this chapter, under the heading "Setup string:." Here we will discuss printer control codes you will find useful if you are inserting global printer commands into the WSPEC file.

Printer control codes

Every alphabetic or numeric character has a numeric code value associated with it by the computer. This is known as the American Standard Code for Information Interchange, or ASCII, code. For example,

“A” is 65, “a” is 97, etc. You can find a complete list of all 255 of these codes in the back of your Model 100 or M-10 manual.

(For those interested in knowing it, these numeric values are the actual 8-bit binary contents of a particular byte. They are translated as ASCII characters, numeric quantities, or machine code instructions, depending on the context in which they are found.)

The smallest code which displays as a character on the screen is 32, which is a space. Codes below 32 are known as “control characters.” They are used to send instructions, as opposed to displayable characters, to a display device. For example, a code 13 to a printer normally returns the print head to the extreme left of its travel. This is a carriage return character (CR). A code 10 feeds the paper up one line. This is a line feed character (LF).

CR and LF codes are fairly universal on most machines, the one caveat being that sometimes a printer (usually as the result of an optional switch setting) will automatically perform a line feed after every carriage return. Unfortunately, other control codes tend to perform different functions on each different model of printer. A control code sent from a computer may set one printer to producing expanded print, another compressed print, another overstriking, and still another underlining. This is even more the case with graphics control codes. Setting the printer to graphics mode, then programming it to produce an image, almost requires a new programming effort for each make of printer.

Sequences of printer control codes often start with an ESC (27) character. When a printer receives an ESC, it will usually interpret the following few characters (the actual number depending on what they are) as control codes, even if they are ASCII codes greater than 31.

In TEXT, the Model 100 and M-10 provide a mechanism for entering and displaying control codes. This is performed by holding down the CTRL key, and tapping P (control P). Nothing will happen. But you have warned TEXT that the next character will be a control character. Say that you want to put an ESC in your text. After typing the control P as described, simply tap the ESC key. You will see something strange on the display. Do not panic. This is quite normal. The first character displayed on the screen is the ^ or caret symbol. The second is the [or left square bracket symbol. This is because you can simulate an ESC by holding down the CTRL key and tapping the left bracket key. In fact, if you look at your ASCII code table, you will see that the [is the symbol following Z in the ASCII code. This is the clue.

The CTRL key simply subtracts 64 from the ASCII value of the key pressed simultaneously with it. So to get an ASCII control code of 1,

press the CTRL key together with the key whose ASCII value is 65, i.e., the A. So control A delivers an ASCII code of 1. In the same way we might enter an ASCII code of 13 with control M; that is to say, if the ENTER key is broken for any reason, you can use control M instead! The backspace key is ASCII 8, or control H, and you can force a line feed in TELCOM with an ASCII 10, or control J. But remember, you can only embed these control characters in your text file if you precede each one with a control P to warn TEXT what is coming. And since the control characters are actually nondisplaying, TEXT displays them by means of a character pair—first the ^ or caret sign symbolizing CTRL, followed by the ASCII character whose value is 64 greater than the control code in question.

[Those interested might note that the CTRL key clears bits 7, 6, and 5 of the character byte, just as SHIFT clears bit 5 (to subtract 32 from a lowercase character).]

Experiment: The TAB key is a control key, too! Try entering control P, then pressing the TAB key. You will see what control character you could use if your TAB key were broken!

Although these control codes appear on the screen as two characters, they are really only one. Try displaying a control character by pressing a control P, then CTRL with another letter. You will notice that if you backspace over the letter, both the letter and the caret sign will vanish simultaneously. This is not the case if, instead of going the CTRL route, you enter the caret (SHIFT with 6), then the alphabetical character.

The upshot of all this is that TEXT will permit you to send control sequences to your printer by embedding them in the text file.

37. TAB

Your SCRIPSIT 100 or PRNT10 program allows you to use the TAB key in two different ways. First, you can use it to create columns in formatted output, with left- and right-hand margins of zero. (See item 26 of this section above.)

Second, you can use it to produce an attractive indented line at the start of a paragraph. When you use the TAB key in this fashion, at the beginning of any line after you have pressed ENTER, you do not have to be concerned with the settings of your margins. Simply press TAB whenever your cursor is positioned at the beginning of a new paragraph. That line will be automatically set to print eight spaces to the right of the left-hand margin.

38. Error Messages

There are a number of different error messages that can appear on your screen.

A. You might see the message

Bad format file

Look at the example of a WSPEC format file shown in Sec. 3 of this chapter. You probably have left out one of the carriage returns (one of the little triangular symbols). Notice in the example where the triangles appear. It is also possible that you have put in an additional carriage return which has thrown off the positioning of the entire file. If all else fails, reload from the SCRIPSIT 100 or PRNT 10 cassette and start over.

B. You might be told that something has not been found. This also relates to the WSPEC file and might read, for example,

Menu not found

This can mean you put in an extra carriage return, as we mentioned above. Look again at the format example in Sec. 3 to see where the triangles should go, and if you have put in an extra one, remove it.

C. You might receive the message

Bad file name

or

File name not found

This means you typed in a file name incorrectly.

D. You might have an I/O error with your screen asking

Printer problem?

This could be any of several irregularities:

- Printer mechanical problems.
- A full directory.

- Cassette problem.
- Funny keyboard input.
- You did SHIFT/BREAK while printing (see item 33 of this section, above).

E. Or the message could read:

```
Error [number] in line [number]
```

See your manual about this. It gives you a list of error messages and their explanations. The most common one is the ?OM or “out of memory” error. If this is the message, it means your Model 100 or M-10 has too much in memory and there are not enough K left to run the SCRIPSIT 100 or PRNT10 program. Therefore it will not print. To solve the problem, you will have to unload enough of your files to provide some relief. Review this guide on how to save to cassette.

Other such error messages, like ?FC or “illegal function call,” are usually caused by something awry in the WSPEC file, most often pertaining to margin values. But the same advice we have already given applies here too. Review the WSPEC file before you panic, comparing it line by line with the example file shown in Sec. 3 of this chapter. Correcting mistakes there is easy.

SCRIPSIT 100 or PRNT10 is an excellent program. It gives you, with your Model 100's or M-10's text generating program TEXT, the capabilities of full word processing. The program is versatile and robust enough for the most demanding user, yet not too complicated for the beginner. Later, in Chap. 5, where we discuss the data base manager program DATA or DATA10,¹ you will learn how to merge letters or documents formatted by SCRIPSIT 100 or PRNT10 with names and addresses, or other types of information, in order to do mass mailings that are personalized for each individual receiving the mailing.

39. Special Print Features for the Olivetti PRNT10 Program

The WSPEC file for PRNT10 has four more entry locations than the file for SCRIPSIT 100 in which you can type in certain codes that will instruct your printer to print with special characteristics. Those loca-

¹DATA and DATA10 are different versions of the same program; see the beginning of Chap. 5, where the distinction is explained.

tions follow “Setup string:” and are labeled “Underline:,” “Bold:,” “Correspondence:,” and “Alternate:.”

In order to cause your printer to print with those special characteristics, it must be instructed to do so by means of certain ASCII codes (see item 36 above for a discussion of ASCII). But unlike for some programs or computers where you must embed the often long and complicated codes directly into the part of your text you want affected by them, with PRNT10 you only have to enter the codes once into the appropriate locations in the WSPEC file, and then whenever you want them activated for a particular section of your text, you can just type in a single, easy-to-remember GRAPH character which PRNT10 will translate into the corresponding control code and send to your printer. Those GRAPH characters will not be printed out as part of your final document, but will merely be used by PRNT10 to control the printing style of your printer.

The following is an explanation of each of the WSPEC file entry locations in which you enter the control codes. We start with “Setup string:” even though it was discussed earlier and is also available with SCRIPSIT 100 so as to give you a complete picture of these PRNT10 features.

Setup string

“Setup string:” allows you to send control codes affecting the entire document—i.e., it allows you to send “global commands.”

A good example of a “Setup string:” entry would be the control code for double-strike printing. Printers vary, as we have said before, but, for example, on the Epson MX-80 the control code for double striking is ESC G. If you send an ESC G code to this printer, it will print everything from then on twice (hence the term “double strike”).

The first step is to determine the correct ASCII codes (the numeric values) for what you want to send. In your printer’s manual is a list of the control codes which will change the way your printer prints.

Referring to the MX-80 example, ESC is the ASCII symbol for “escape.” Its ASCII code (numeric value) is 27. (ESC is the code often used to signal printers they are about to receive additional codes, codes that will modify their printing characteristics.) The ASCII numeric value for G is 71.

Now it is important to remember that all the values you enter into the WSPEC file must have three digits; so pad the values with zeros if necessary. Here 27 becomes 027, and 71 becomes 071. Since capital and lowercase letters have different ASCII codes, remember to pay attention to that characteristic also.

Thus the “setup string” ESC G becomes 027071. Let us enter this into the WSPEC file:

- A. Go into the WSPEC file.
- B. Press CTRL/down arrow to go to the end of the WSPEC file. On the line that reads “Setup string:” type in 027071 (or the code needed for your printer) after the colon but before the carriage return symbol, like this:

```
Setup string:027071◀
```

- C. Do not press ENTER as you finish. The placement of carriage symbols is critical in the WSPEC file.

This code will then be sent at the start of every document you format with PRNT10. You will not have to remember to send it.

The procedure for entering codes on the other four lines is similar.

Underline

Underlining codes are what you send to your printer to start or stop underlining. There are usually two codes, one to start, another to stop. For example, on the MX-80, the codes are:

- Underline start: ESC - 1
- Underline stop: ESC - 0

First translate the symbols into ASCII, one at a time. ESC is 027 (as we said before, the codes must be three digits long). Hyphen is 045. The last code, 1, can be either an ASCII 1 (001) or a character “1” (ASCII 049). Usually, the printer’s manual will give you the ASCII code, so the 1 would be 001. If in doubt, try this way first. Assuming you should use 001, the code string for “Underline start” is 027045001. In this example, 0 means ASCII 000, so “Underline stop” is 027045000. A good idea is to first find *one* code that works and write it down, then try another.

To enter the codes into the WSPEC file, type the numbers on the “Underline:” line, after the colon, the GRAPH symbol, and the comma, but before the carriage return symbol, separating the two code strings with a comma. The result should look like this:

```
Underline: 1 ,027045001,027045000◀
```

GRAPH U: Now, the easy part. With underlining, you must be able to tell the printer when to start or stop. With PRNT10, this is done

with GRAPH characters. A GRAPH character is typed by holding the GRAPH key down and pressing another key simultaneously. Try holding the GRAPH key down and pressing C at the same time. Notice the small `┘` character?

These GRAPH characters are what you will type into your text to control your printer. *They will not be printed.* When PRNT10 sees a first GRAPH U, it will send the codes for "Underline start." When it sees a second GRAPH U, it will send the second set of codes, to stop underlining. The advantage is that once you get the ASCII codes figured out and entered into the WSPEC file, you can forget about them and just use the GRAPH characters.

Hint: You should *always* write down a code that you find works right, or list the WSPEC file with SHIFT PRINT.

Now, let us make up a sample TEXT (.DO) file to test our codes with.

- A. Press F8 for the Main Menu.
- B. Place the cursor on TEXT and press ENTER.
- C. Name your file with up to six characters (something like TEST), and press ENTER.
- D. Type in a short sentence, then press ENTER.
- E. Now type in GRAPH U. Type in another short sentence, then type in another GRAPH U.
- F. Press ENTER, then type in another sentence on the next line. This sentence will be to see if the "Underline stop" code worked correctly.

Your file should look something like this on the screen:

```
Test sentence number 1.┘
┘ Underlined sentence.┘ ┘
Last sentence.┘
```

Run PRNT10 and print the file you just created, as outlined before. Before you do, however, hook up your printer and turn it on and off. This clears any codes that happened to be in it before.

Your printout should look something like this:

```
Test sentence number 1.
Underlined sentence.
Last sentence.
```

Only the second sentence should be underlined.

If the program and codes did not work correctly:

1. Turn off your printer, then turn it back on again to prevent any codes from being "left behind."
2. Go back to the WSPEC file and reenter any codes that did work correctly.
3. Change any codes that did not work correctly.

If your first try failed to produce the desired results, *do not feel discouraged!* We all have the same problem. The first correct code sequence is always the most difficult to achieve. This trial-and-error method is the only way to learn.

If PRNT10 gives you a message like

Bad printer control string

it means that a control code sequence in your WSPEC file is not the correct length. Since each code must be three digits long, the whole string of codes must be a multiple of three digits: six, nine, twelve, etc. Press F8 for the Main Menu, and check out the WSPEC file. Count and see which codes are not the correct length.

Use BASIC: If, after trying various combinations of codes in the WSPEC file, you still cannot get your codes to work, you can use BASIC to try them. Go to the Main Menu, place the cursor on BASIC and press ENTER. Now type in

```
LPRINT CHR$(XXX); "TEST WORDS"
```

where the X's above stand for the code in question. Press ENTER to send the code and test words to your printer. This can sometimes help test a particular code. If several codes are used, you must use a CHR\$(XXX) for each one.

Another possibility: Some codes you will be sending do not start with ESC. These codes are sometimes ignored by printers. To solve this problem, put a 000 (NUL) before the other codes, like this:

```
Underline: 1 ,000015,000014◀
```

Bold

Bold print is another option with most printers. Some printer's manuals call this "double-width print." Bold print is useful to highlight a title or to emphasize a particular passage.

First type in the correct ASCII codes into the WSPEC file, just as for

underlining. Then type GRAPH B in your document to start Bold print and GRAPH B again to stop it. PRNT10 translates these GRAPH B's into the corresponding codes from the WSPEC file, and sends them to your printer.

Returning to the Epson MX-80 example, the symbol for bold (double-width) print is SO. SO stands for "shift out," which is ASCII code 014. Bold stop is DC4 ("Device control 4"), or ASCII 020.

Let us enter the codes into the WSPEC file:

1. Go to the WSPEC file. Type in CTRL/down arrow to go to the end of the file.
2. Type in the codes for bold (double-width) start and stop in the space provided, like this:

Bold:—,Ø14,Ø2Ø◀

Note:

Since these codes do not start with ESC, it is sometimes necessary to put 000 (NUL) before the code itself, like this:

Bold:—,ØØØØ14,ØØØØ2Ø◀

This alerts the printer that it is about to receive a control code. Try this if the regular codes do not work.

3. Do not press ENTER.

Use the same TEXT file that you created to test the underlining codes. Add three lines to test bold with—the first to make certain any other print modes have been cancelled, the second to test Bold start, the third to test Bold stop. It should look like this on your screen:

```
Line one.◀
— Bold line.—◀
Not bold.◀
```

Turn your printer on and off. Run PRNT10 and print this file. Your printout should look something like this:

```
Line one.
Bold line.
Not bold.
```

Follow the procedures given in the section on underlining if the codes do not work. Be sure to write down any codes that do work.

Bold, or double-width, characters can lead to margin problems with PRNT10. If you have a long line of bold text, it may overlap into the right-hand margin, or even onto the next line. For instance, if you have a line length of 80, a left-hand margin of 12, and right-hand margin of 12, your actual printed line will be $80 - 12 - 12 = 56$ printed characters long. This is only enough room for 28 bold characters, however. If a line overlaps into the right-hand margin, split it up into two shorter lines and try again.

Some printers have "autodeactivating" bold print. Bold print is automatically deactivated (turned off) after each line of print. But it is best to put a GRAPH B at the end of the line anyway, even if your printer has this feature.

Correspondence

Correspondence print can be either double-strike printing on daisy wheel printers or emphasized print on dot matrix printers.

For the Epson and Riteman printers, the symbol for emphasized print start is ESC E, and for emphasized print stop is ESC F.

To translate the symbols into ASCII codes (numbers):

```
ESC = 027
E   = 069
F   = 070
ESC E = 027069 (start)
ESC F = 027070 (stop)
```

Type the codes into the WSPEC file like this:

```
Correspondence: _ , 027069, 027070 ◀
```

Separate the two code sequences with a comma, as before. Do not press ENTER as you finish.

To start Correspondence quality print, type GRAPH C in your document. To stop it, type GRAPH C again. PRNT10 will translate these GRAPH C's into the code sequences in your WSPEC file and send them to your printer.

Return to your sample TEXT file and add three lines to test these codes, like this:

```
Not correspondence. ◀
_ Correspondence print. _ ◀
Regular again. ◀
```


Turn your printer on and off again, like before. Run PRNT10 and print this file. The result should look like this:

Not correspondence.
Correspondence print.
 Regular again.

Experiment with different combinations if the above codes did not work, and write down any codes that did work. The procedures to follow should the codes not work are the same as given in the section on underlining.

Alternate

“Alternate” is an extra space in the WSPEC file you can use to store another printer control code of your choice. This can be for italics, vertical line spacing, horizontal tab set, or whatever you like. It is entered into the WSPEC file exactly in the same way as are codes for underlining and the other special print features. Refer to those sections for the procedures.

To start an Alternate code, type in GRAPH A (). To stop it, type in GRAPH A again.

To summarize the use of the special PRNT10 control codes:

1. Determine the correct control codes from your printer's manual. Some translation may be necessary.
2. Pad codes with zeros if necessary so each code is three digits long. [Thus ASCII 27 (ESC) becomes 027.]
3. Type in the codes on the proper line of the WSPEC file, after the first comma, but before the carriage return symbol.
4. Separate start and stop codes with a comma.
5. Do not press ENTER.

The “Setup string:” of control codes needs no GRAPH character; it is sent automatically whenever you format a document with PRNT10, and it affects the entire document.

After the codes are entered into the WSPEC file, type GRAPH characters in your text (document, .DO) file to start or stop a particular effect. The GRAPH characters are:

- Underline: GRAPH U 
- Bold: GRAPH B 
- Correspondence: GRAPH C 
- Alternate: GRAPH A 

The PRNT10 program detects these GRAPH characters in your document file and sends the corresponding control codes to your printer. When the program sees the first GRAPH U, for example, it sends the first code in the WSPEC file under “Underline:.” When it sees a second GRAPH U, it sends the second. And it works the same way for the other special printing features of PRNT10.

40. Temporary Indentation—A Special Feature of PRNT10

In addition to changing the left- and right-hand margins with .Ln and .Rn dot commands, with PRNT10 you can now indent a paragraph (or “unindent” a paragraph) temporarily with .Tn, where n is a positive or negative number. This will change the left-hand margin setting for the first line only. The margin will move to the left if the number is negative or to the right if it is positive, and will return to its regular .Ln value on the second and succeeding lines.

For instance, this paragraph was indented 15 spaces to the right, with a .T15 command. With this command you can indent a paragraph any number of spaces, not just a multiple of 8 like with the TAB key. You can also have a paragraph’s title line “stick out,” where it will be more easily seen, without putting it on its own line. This is done with a “.T – n” command (n is negative), as the following example shows.

Example: What the screen looks like:

```
.T-4 ◀
A. Paragraph one. This would be the first paragraph of
an outline. The title line can be on the same line as
the rest of the paragraph.◀

.T-4 ◀
B. Paragraph two. Notice how the A.'s and B.'s stick
out, and are more noticeable. This can lead to some very
professional looking outlines.◀
```

What it looks like on paper:

- A. Paragraph one. This would be the first paragraph of an outline. The title line can be on the same line as the rest of the paragraph.

- B. Paragraph two. Notice how the A.'s and B.'s stick out, and are more noticeable. This can lead to some very professional looking outlines.

Note:

You cannot “unindent” (n negative) more than your present left-hand margin value, nor can you indent (n positive) more than your print width (print width = line length – right-hand margin – left-hand margin).

6. SCRIPSIT 100 or PRNT10 Function and Command Summary

Use this summary as a guide only after studying your manual thoroughly.

1. Centered headings: Embed .C before heading and .N after for ragged edge to follow, or .J for justified. (Remember about dot command rules: Each goes on its own line. Carriage return follows command. Flush left. Period at beginning. Takes up no space in printed copy. (n is shorthand for number of spaces or lines on examples.)
2. Centered text: Same as centered headings, text is merely longer. For entire document, go to WSPEC file. Change “Format” symbol to C.
3. Justified right-hand margins: For entire document, go to WSPEC file. Change “format” symbol to J. For justified and ragged in same document, see item 18 in Sec. 5 of this chapter.
4. Printing multiple copies: Go to WSPEC file. Change “Number of copies” from 1 to number you want to print.
5. Numbered pages—top, bottom, or both: Go to WSPEC file. Put page %P in “Header,” “Footer,” or both. Leave space after P for page numbers before carriage return or other entries.
6. Setting right- and left-hand margins: For entire document, go to WSPEC file. Change to number of spaces desired on edges of paper. For example: “Left margin:8” and “Right margin:4.” For changes in middle of document, embed .L8 (or whatever number of spaces you want) for section of text you want indented that amount. To change back to original values or set another margin width, repeat procedure with new values.

7. Start numbering at choice of page: Go to WSPEC file. Change "Number of beginning page in document" from 1 to whatever page you want to begin at.
8. Title page: Option 1: As separate file. WSPEC file should read "Header switch:0," "Number of beginning page in document:0," "Start printing at page:0." Embed .U20 and .C, type in title, and then embed .F0 (if no footer desired).
Option 2: At beginning of document. WSPEC file should read same as above. Embed .U20 and .C, type in title, embed .F0 (for no footer), .H1, .P, .F1, and .N.
9. Title page in middle of document: For new chapter: Embed .H0, .P, .U25, and .C, type in title, embed .F0, .P, and .N.
10. Memo format: In WSPEC file, see that relevant spec reads "Extra line on paragraphs:1."
11. Standard block letter format: In WSPEC file, see that relevant spec reads "Extra line on paragraph:0."
As an alternative procedure: See that relevant spec in WSPEC file reads "Extra line on paragraph:1." Before name and address embed .S0, then before last line of address embed .S1.
12. Indented paragraph: Before paragraph, embed .Ln (n = number of spaces to indent); at end of paragraph, embed another .Ln to restore old spacing.
13. Header: Go to WSPEC file for header line (%D=Date,%T=Time,%P=Page#); after %D leave space for date, after %T leave space for time of day, and after %P leave space for page number, then type in carriage return (triangle symbol) by pressing ENTER. One carriage return for entire header. One line (80 characters) limit, unless "Lines per page" value lowered, by one line for two-line header and by two for three-line (maximum).
14. For footer, same procedures apply.
15. Chapter end feature: Embed .P.
16. Document end feature: Automatic. Paper advanced to bottom of page and footer printed. See item 17 in Sec. 5 above.
17. Top of page feature: Automatic after end of document. Moves printer to top of next page.
18. Justified and ragged right edges in same document: Embed .J or .N to change before and after paragraph.
19. Pause between pages: Controlled by WSPEC. 0 = no, 1 = yes.
20. Skip lines: Creates open space. Embed .Un.

21. Double, triple, or more spacing between lines: For entire document, go to WSPEC entry for "Line spacing" and set to 2 for double spacing, and to 3 or more for triple or more spacing.
In middle of document, embed .S2 (for double spacing) before paragraph to be double-spaced, embed .S1 after to restore single spacing. Embed .S3, .S4 for triple, quadruple spacing, etc.
22. Multiple margin settings in same document: Embed new .Ln or .Rn values prior to section where change is wanted, then change back afterward.
23. Favorite format printing (no setting): Adjust WSPEC file to preference. Call up SCRIPSIT 100 or PRNT10 (WRITE on the Main Menu). Type in any text file name and press ENTER.
24. Optional line space between paragraphs: In WSPEC, "Extra line on paragraphs" value should read 1 for yes, 0 for no.
25. Global printer commands: Go to WSPEC file, "Setup string:." Control P embeds each command.
26. Optional extra blank page at end of document: In WSPEC, "Feed page at end:" value should read 1 for yes, 0 for no.

Possible User Errors

1. When editing the WSPEC file, you might accidentally delete a colon. Check your file against the example of one shown in your Model 100 or M-10 manual to make sure that your colons are all in place.
2. There should be no carriage return (i.e., ENTER symbol) at the beginning of your WSPEC file. Carriage returns appear as small triangles on your screen, and their positioning is very important.
3. Another problem concerning carriage returns is that when you make a change in the spec file, you might accidentally add an extra one. As mentioned in point 1, refer to the example of a WSPEC file given in your manual to make sure you have only the carriage returns you need. If all else fails, reload WSPEC from cassette.
4. Make sure your "Print lines per page" is less than or equal to your "Lines per page."
5. The sum of your "Top margin" and your "Bottom margin" values should never exceed your number of "Printing lines per page."
6. The sum of your "Right margin" plus "Left margin" values should not exceed your "Line length."
7. When your footer or header is longer than one line, you will run into some problems if your printer does not have a wrapping capability.

8. You will also experience a problem if, when printing one file that is a continuation of another, you tell the computer to start printing on an earlier page than you show as the beginning page of the document.
9. If you are outputting to a document through SCRIPSIT 100 or PRNT10 to a new file in RAM, do not put a colon anywhere in the file name.

The ADDRSS and SCHEDL Programs

On your Main Menu you will observe two programs listed with the file names ADDRSS and SCHEDL. These two application programs are actually the same program, although they have different names. They do exactly the same functions and perform in exactly the same fashion. They are positioned as separate programs merely in order to enhance the salability of the machine, but they could just as easily have been handled as one program.

What ADDRSS and SCHEDL do is enable you to store lists of information such as addresses and phone numbers, or notes such as calendar items or information from a “things-to-do” lists. Then the program(s) allows (allow) you to recall that information to the screen on a selective basis. Not only can you recall to the screen selectively, but you can print out listings of your choice as well.

Once you become familiar with how the programs function, you can put them to work for yourself as useful devices for quickly calling up to the screen or printing out any or all of the following: addresses, phone numbers, activities that you have planned, or even notes you have made for yourself on such topics as expense items, etc.

You will find that the programs have some inadequacies, but their faults can be overcome and the program quite easily enhanced and made much more useful by the addition of another application program for your Model 100 or M-10—one called DATA or DATA10.

First we will explore how ADDRSS and SCHEDL work, then we will consider some of the things that you can do with them, and third we will explain how to make the programs most useful for you. In Chap. 5 we will explore how to use them with DATA or DATA10.

1. How They Work

To use ADDRSS and SCHEDL you must first create text files. This is done in the same way we discussed in Chap. 2. ADDRSS works with a text file you must title ADRS.DO and SCHEDL works with a text file that you must title NOTE.DO. Create both of these text files at this time. If you do not remember how to create a text file, review the relevant section in Chap. 2.

The Model 100 and M-10 manuals go into a tremendous amount of detail in explaining separately how ADDRSS and SCHEDL work. It is our experience with first-time users that after they have studied those chapters thoroughly, many of them have a very poor appreciation of what they can accomplish with the programs, often thinking the programs are far more complicated than they really are. We have a simple exercise for you to do that will illustrate exactly the total capabilities of the programs. After we have gone through this exercise, you will understand how the programs work, and then we will talk about what you can do with them.

From your Main Menu put the cursor on ADRS.DO and press ENTER. You are now in the text file creating a document just like we described in Chap. 2. Type in the following, beginning on line 1 and pressing ENTER after each line that you type:

```
*Jim Johnson:235-6000
$Supplies:124.00
%Have new phone installed: 08/12
*Mary Smith:343-8976
$Transportation:5.80:bus
%Mow the yard:before sat
*Tom Jones:654-9876
$Hotel:45.89:08/13
%Order cake:chocolate
*Nancy Thompson:234-7865
%Get oil changed:check filter
%Wash the car:remember wax
$Meal:12.87
```

Now, using the select, copy, and paste method that you learned in Chap. 2, make an exact duplicate of what we just typed into ADRS.DO in the file called NOTE.DO. (Press CTRL/up arrow to take you to the top of the file, press F7 to select, do CTRL/down arrow to define the entire file in reverse video, do F5 to copy, press F8 to take you back to the Main Menu, move the wide-bar cursor to NOTE.DO, press ENTER, then press PASTE.)

You now have the same information in each file. We will explore what SCHEDL and ADDRSS can do with this data. From the Main Menu put the cursor on ADDRSS and press ENTER. The screen shows:

Adrs:

Find					Lfnd			Menu
1	2	3	4		5	6	7	8

If you were to go into SCHEDL, you would discover the screen there appeared identical except that in place of "Adrs:" it would say "Schd:," as follows:

Schd:

Find					Lfnd			Menu
1	2	3	4		5	6	7	8

2. Experimenting with What You Can Do with Them

We will do our experimentation using ADDRSS. When we are finished, you should go through exactly the same steps with SCHEDL just to illustrate to yourself that the programs are identical in everything but name.

Press F1 (find). The screen will say "Find" immediately after "Adrs:," and the blinking cursor will be positioned after "Find." Type in any one of the symbols that we have in our examples. For instance if you type the percent sign and press ENTER, you will see the following:

```
Adrs: Find %
%Have new phone installed:08/12
%Mow the yard/before sat
%Order cake:chocolate
%Get oil changed:check filter:08/12
%Wash the car:remember wax
Adrs:
Find      Lfnd      Menu
 1        5        8
 2        6        7
 3        7        6
 4        8        5
```

What happens is that the program searches for all occurrences of the character or characters you type after you cause "Find" to appear on the screen. Notice above that it showed only the examples with a percent sign, but none of the others in your file.

Next press F1 (find). And after the "Find" appears at the top of the screen, type the symbol : and press ENTER. Now the screen will look like this:

```
*Jim Johnson:235-6000
$Supplies:124.00
%Have new phone installed:08/12
*Mary Smith:343-8976
$Transportation:5.80:bus
      More Quit
        3      4
```

Again what is happening is that the program is searching for and finding all the occurrences of the : symbol in the ADRS.DO file. If there are more than five lines that have an occurrence of what you asked the program to find, it displays the words "More" and "Quit" at the bottom of the screen over the numbers 3 and 4. Since each of our examples had an occurrence of the : symbol, you would see every example displayed if you continued to press F3 (more). If you wish to see more occurrences of the keyword that you typed, just press F3. If you have seen enough, press F4 and you will be back at the original screen for ADDRSS.

At this time again press F1 (find) and after "Find" appears at the top of the screen, type Johnson and press ENTER. The screen will look like this:

```
Adrs: Find Johnson
*Jim Johnson:235-6000
Adrs:
```

```
Find      Lfnd      Menu
 1      2  3  4      5      6  7      8
```

In this case you typed and searched for the only reference to that item, and since it occurs only once in the file it could have only one chance to come up on the screen. Therefore, if you wish to search and find any specific reference, you can do so. One limitation, however, is that the search is limited to an exact reference. For example you could not have typed *Johnson and found the above example, because it does not occur in the file in that fashion.

In Chap. 5 when we talk about the DATA or DATA10 program, you will see that a more specific type of searching is possible, because you can search separately on any of up to 16 different locations in a single record. The ADDRSS and SCHEDL programs have their limitations, but their searching can be very useful if you want to quickly call records to the screen or print them, as we also explain in Chap. 5.

For now experiment with the F1 (find) key, calling up on the screen different symbols and different examples of terms. For example, search for all instances of / or search for specific names such as "Tom Jones." Try typing in just JO after "Find" appears at the top of the screen, and then press ENTER. The program will search for all the references or occurrences of those two letters, and the screen will look like this:

```
*Adrs: Find jo
*Jim Johnson:235-6000
*Tom Jones:654-9876
Adrs:
```

```
Find      Lfnd      Menu
 1      2  3  4      5      7      8
```

Notice that when we did that search, we typed in the jo lowercase even though in the file it occurs with the J uppercase.

Experiment with learning all the different characteristics of the finding function. Try finding different symbols or letters, names, or specific references. The way to become familiar with the capabilities of the program is to give it a complete run-through in which you test every possibility of what it can search for. Already you should be starting to see some applications. You will quickly realize that the symbols can be used to distinguish different categories of information you need to be reminded of.

At this time go back to the Main Menu by pressing F8. Put the wide-bar cursor on SCHEDL and press ENTER. Go through exactly the same exercise that we went through with ADDRSS, and observe that the programs are virtually identical. As we mentioned, the only difference between them is their names and some labels: The prompt is "Adrs:" on one and "Schd:" on the other, and you access one as the ADRS.DO file and the other as the NOTE.DO file.

Since for our exercise we put the exact same information in both ADRS.DO and NOTE.DO, you will have exactly the same responses as you test each of them.

After you complete the exercise with SCHEDL, practice with the F5 (Lfnd) function key on either of the programs. Lfnd is short for "List

find.” This means it works exactly like the finding function except that it will print out onto your printer instead of onto the screen what the program has searched and found. With your printer connected as we talked about in Chap. 2 or as explained in the Model 100 and M-10 manuals, go through the same exercise we did for the F1 (find) function key, but using the F5 (Lfnd) function key. The only difference you will notice is that when you do an Lfnd for a character or for words which appear in more than five lines, the output will not give you the choice of “More” and “Quit,” as it did when you were displaying on the screen. When you are listing to the printer, it simply prints out all the occurrences that it finds, without stopping.

After you have completed the exercise with F5 (Lfnd) on both SCHEDL and ADDRSS, you will be fully educated as to how the programs operate. It is up to you to be creative and discover different ways that you can type in and store facts and information in order to have them properly at your fingertips when you need them.

3. How to Make Them Most Useful

Now that you have become totally familiar with what ADDRSS and SCHEDL can do, you can put your mind to work to figure out what is the best way to utilize them properly. Since they are arranged as two programs, you could, of course, simply keep your schedule items in SCHEDL and your addresses in ADDRSS. It is nice, however, to be able to use them to their fullest extent.

In Combination with TELCOM

In Chap. 7 we will talk specifically about the TELCOM program. Here we note that it is somewhat the same program as ADDRSS and SCHEDL except that it can automatically dial telephone numbers as well as send and receive files from other computers. However, in terms of ADDRSS and SCHEDL, it can only access the ADRS.DO file, so if you want to use its autodial feature for any of the telephone numbers you keep on file, be sure to put them in ADRS.DO.

Your manual, in its description of the TELCOM program, mentions how helpful a user might find it to have his telephone calls dialed automatically. But we have found that the only way the autodial feature is really helpful is when you use it to connect your Model 100 or M-10 with another computer by telephone. To try to use it for conversational calls is close to ridiculous. First of all, it functions extremely slowly because it involves pulse dialing as opposed to tone dialing. Second, you must pick up the receiver just when the numbers are being

completed. But you will find when you do this that often the call is not yet completed and you must put down and pick up the receiver again. In the end it is just not worth the hassle. Speed calling, which is available by means of other devices, is so far superior that there is no comparison. Therefore, the only telephone numbers that you need to be certain are in the ADRS.DO file are the computer log-on numbers for accessing and communicating with other machines.

In Combination with DATA or DATA10

One of the problems you will encounter in working with ADDRSS and SCHEDL is difficulty in entering information rapidly. Just typing in your schedule or addresses and phone numbers at the different times they occur to you will result in very irregularly arranged and placed records. Further, it is a slow and often discouraging process to call them up again, because records that are irregularly placed are hard to review properly. And it would also be helpful to have your facts so arranged that you could sort them easily by any of several characteristics.

In order to solve these problems and provide orderly and quick inputting and outputting, you need what is known as an "input screen." An input screen is a series of prompts and blanks where you just fill in the information the computer asks for. By means of it, you can rapidly record any information you are listing into the file. Since the data is being input in such an orderly manner, it can then be recorded or printed out in a variety of ways. The DATA or DATA10 program, which is described in Chap. 5, allows you to do just that. With DATA or DATA10 you not only list information into the file in a rapid and organized fashion, but you can search, examine, sort, or print out that information in numerous ways from address labels to columnar tables to insertions of selected parts of records into documents that you have formatted with SCRIPSIT 100 or PRNT10.

Once you have created the ADRS.DO and NOTE.DO files with the DATA or DATA10 program, you will be able to access the information in them with your ADDRSS and SCHEDL programs even when you temporarily do not have the DATA or DATA10 program in your computer. For the time being, though, use the ADDRSS and SCHEDL programs alone for a sufficient time to become familiar with them. When you start to feel some of the frustration of wanting to do more with the information you have filed, then is the time to get the DATA or DATA10 program and begin really doing some professional data management work with your Model 100 or M-10.

The DATA or DATA10 Program¹

1. Introduction

DATA, available from your local Radio Shack store or Computer Center, and DATA10, available from your Olivetti dealer, enable you to rapidly arrange information in an orderly fashion in any text file you choose. Further, you can revise any records you have filed by means of it. You can print out those records as labels or lists or in a variety of other configurations. Finally, you can merge any information you have filed into form letters or any other design form.

The program has tremendous applications for you. You can put names, addresses, and phone numbers, along with other relevant information about each name in the address file, into a consistent setup or format. This lets you sort or print out these names later by any of the up to 16 fields or categories you have to choose from. Moreover, the typing in (or input) of the names, addresses, etc., is done very rapidly because you are given a screen which prompts you for each entry. That screen provides a space for you, blocked out in reverse, which will not let you type in too many characters (if you do you will just go into the next category).

The program also lets you create your own prompt screen, called a "D screen," for whatever special information you must store. You could set up a screen for inventory items, for example, including stock numbers, descriptions, price/unit, amount on hand, and other details. You can have up to 16 prompts and blanks on such a D screen, just as long as you can get them all on the 8-line by 40-character visual screen.

¹DATA is a trademark of Tandy Radio Shack; DATA10 is the Olivetti trademark for a similar version of the same program.

When you are in DATA or DATA10, each time you complete filling out the prompts, you just press F3, and all that data you have typed in will be immediately stored in the file you picked earlier. Then the screen will be ready again for more entries.

When you access DATA from the Main Menu, you will be shown all the files and asked,

D screen name?

because you can have several different ones that you have created. You could have a screen for names and addresses, another for appointments, and still a third for inventory items. In fact, you could have one for any group of facts about people or things that need to be arranged in orderly fashion for access later.

The purpose of putting facts into an orderly format is to produce files that are orderly for listings (printout), for study, for sorting (by means of SORT), and for searching by means of DATA or DATA10 features as well as by means of the Model 100's or M-10's finding function. Best of all, the use of DATA or DATA10 assembles those facts dozens of times faster than if you were to try always typing them into the files in the same orderly format yourself.

DATA or DATA10 also allows you to edit (or revise) any record. This means you can update a file by recalling the record to the screen with the F1 function key. You can even edit a group of similar records by searching with a keyword common to all its members. This capability means you can use DATA or DATA10 for maintaining inventory records, updating price lists, or changing any kind of record to reflect a change in its status.

DATA or DATA10 has extremely versatile listing capabilities. You can print out your records in a variety of formats, and you have a full range of options in regard to the particular records as well as the part of the records you can choose to list. We give some of those possibilities here:

1. You can print out address labels and listings of many configurations.
2. You can select any record or group of records by any of the 16 fields alphabetically or numerically (for example, by a certain state or zip code).
3. You can print out the fields in any order you specify. For example, you could print out just a list of states and companies if you wanted.

4. You can set the left-hand margin and you can pause between listings, allowing you to print on hand-fed sheets or envelopes.
5. You can spread an individual record over as many lines as you like, for example, over an entire page or even two pages. This allows the preparation of inventory picking tickets or salesmen call reports or any type of information that, when printed out, must contain space for written-in comments or facts. This feature also allows you to print names and addresses off a mailing list onto preprinted letters, either tractor- or hand-fed.
6. You can print out in columns. This allows the preparation of very orderly reports containing such diverse information as names, cities, phone numbers, catalog numbers, descriptions, prices, etc.
7. The redirectable output feature allows you to transfer all or merely selected records of selected fields to a new file or to another computer or cassette.

Not only can you format the way you like, but DATA or DATA10 remembers the way you formatted last by encoding that D screen, and will allow you to “default” to it automatically the next time you use the program just by pressing ENTER. Or you can reformat to a different layout any time you desire, thus automatically encoding that different D screen for the next time.

This “defaulting-to-your-previous-format” feature allows you enormous flexibility. For example, you could build a large file of many names and addresses that included various pieces of information about those names. You could then have one screen file dedicated to mailing addresses, and another dedicated to printing out a columnar list just of names and some particular fact that you have been updating periodically with new information, such as credit rating or purchases to date.

You also have the ability to add selected records to an existing file. This allows you to compile a single report made up out of different records each of which you have selected on an individual and specific basis—for example, a purchase requisition for five different inventory items, each chosen for a different reason and pulled individually from the master list.

DATA or DATA10 also allows you to merge information with the easy pressing of a function key. After you have prepared your merge letter or form and printed it one time, you can default to it any time, just like you can to your favorite listing format. Any information in any of the fields can be merged exactly as you designate into letters or forms. You can print personalized letters to everyone on a list or just to selected individuals, each letter containing whatever special information you wish included right from the individual’s record.

In addition, you also have the ability to review, and edit if you wish, any record simply by calling it back up with the F1 (find) function key. You can look at just one, or every, occurrence of the search word.

In summary, DATA or DATA10 provides you with versatile data entry, file maintenance, listing, and merge capabilities.

2. Loading

- A. Place the cassette labeled DATA or DATA10 into your cassette player. Make sure the player and your computer are connected properly. See your Model 100 or M-10 manual.
- B. Rewind the tape completely. It may be rewound already, but make certain. Press PLAY into the locked position.
- C. There are three items that must be loaded into your Model 100 or M-10 in order to run the DATA or DATA10 program. They are easy to load. The first is a BASIC file called DATA.BA. The second is a machine code program that will not appear on your Main Menu, although it does occupy directory space. If you have loaded SCRIPSIT 100 or PRNT10, both of which have this machine code program, you will have it already. If such is the case, you should proceed with the loading procedure from step H after you have completed step D. The third item that must be loaded is a document file known as a "D screen." The first example of this that we will load is called DADRS.
- D. With the cassette player loaded as we described it, turn on your Model 100 or M-10. The Main Menu will display. With the cursor on BASIC, press ENTER. You will immediately go to BASIC and the screen will say,

Ok

- E. Press F2 and the screen will show

Load "

You merely type in CAS:CORTNS and press ENTER. Automatically the cassette will run and while it is running the screen will say:

Found: CORTNS

F. When the cassette player stops, the screen will say

Ok

Press F4 and the cassette player will start to run, and when it stops the screen will clear and say,

Ok

G. Type in RUN 50 and press ENTER. After a few seconds the screen will say

Ok

H. Press F2 and the screen will show

Load "

You merely type in CAS:DATA and press ENTER. Automatically the cassette will run, and while it is running the screen will say:

Found:DATA

I. When the cassette stops, the screen will say

Ok

You then press F3 and the screen will say:

Save "

You then type in DATA and press ENTER. The screen will say

Ok

Press F8 to return to the Main Menu.

J. Do not change any settings on the cassette player. From the Main Menu put the cursor on TEXT and press ENTER. The screen will say:

File to edit?

Type in DADRS and press ENTER.

- K. Press F2 and the screen will say:

Load from:

Type in DADRS and press ENTER. Automatically the cassette will run, and while it is running the screen will say:

Found: DADRS

- L. When the cassette shuts off, the screen will fill with the following pattern:

```

                                DADRS
FIRST: [REDACTED] LAST: [REDACTED]
COMPANY: [REDACTED]
STREET: [REDACTED]
CITY: [REDACTED] STATE: [REDACTED] ZIP: [REDACTED]
PH(insert: ) [REDACTED]
MEMO: [REDACTED]
CODE: [REDACTED] F3>Saves F8>Menu

```

- M. Do not type anything on this screen; it is used by your DATA or DATA10 program to create a prompt screen. We will explain how to use it in the following pages. Instead, press F8, which will return you to the Main Menu.

3. Getting Started

We will now go through a step-by-step sequence of how to use DATA and DATA10. You will start off using a prompt screen already created for names and addresses, and then be shown how to create your own.

- A. Go to your Main Menu, place the cursor on DATA, and press ENTER. The files will be displayed and the screen will ask:

D screen name?

- B. Right now there is only one screen format name on the Menu, and that is DADRS. Later, when you learn how to make others, you might have a choice, because you may wish to keep two or three available, each for a different purpose. So since DADRS is it for now, type in DADRS.

C. Now the screen will ask:

Document file name?

Notice that the file names are displayed on the screen. You can type in any of the .DO files (DO stands for "document"). Or you can type in any new name (up to six letters) and the program will automatically create that new file for you. Since our first screen format (DADRS) is for addresses, type in ADRS and press ENTER. (ADRS.DO can be accessed by the ADDRSS file already in your Model 100 or M-10, and we will discuss later how to use it more effectively.)

- D. Even if you have not created an ADRS file, DATA will do it for you. The screen will now show a series of prompts. The first is for names; the space to type in each name is in reverse image, and it covers exactly the amount of space allotted for the entry. The screen will look like this:

```

                                DADRS
FIRST: ██████████ LAST:
COMPANY:
STREET:
CITY:                STATE:  ZIP:
PH(insert: )
MEMO:
CODE:                F3>Saves F8>Menu

```

- E. You simply fill in the blanks. You cannot make too long an entry, or it will go to the next field (or blank). But if you need to back up, because you did not get it all in, you can just use the backspace key and retype if you wish. Here are some special rules:

1. The F3 function key saves whatever you have typed into the file (this is known as "saving to the file"). Press ENTER to move from field to field.
2. If you press F3 before you have completed an entry, you will get a clean screen with prompts ready to be filled in again. Just retype and this time press F3 to save only when the entry is completed and thus ready to be saved.
3. Use the ENTER key or the down or up arrow to move you from grid (blank) to grid.
4. F8 exits you to the Main Menu. The key does not save even when you have typed in your last entry. If you press F8 without

first pressing F3 to save whatever typed copy is on the screen, you lose that copy.

5. When you press the LABEL key at any time, you will see the labels shown below at the bottom of the screen. Refer to those labels whenever you need to remind yourself of what the function keys do in DATA and DATA10. We will discuss the F1 (find), F5 (list), and F6 (merge) functions in detail at different points throughout the rest of this chapter.

Find		Save		List	Mrge		Menu
1	2	3	4	5	6	7	8

6. You can recall, review, and edit (change) any record you have entered and saved to the file when you pressed F3. This is very easily accomplished, and is explained under item C in Sec. 6 later in this chapter. This feature also allows you to update records so you can revise inventory amounts, price information, or other facts which change from time to time.
- F. When you have finished typing in the last bit of information for each entry, press F3. This saves the entire entry to its file. You will get a clean new screen (with prompts) just like when you started. Type in the next entry.
- G. When you have finished typing in the last of the names and addresses, press F3, and then press F8 to take you back to the Main Menu. Here are some things to note about your DADRS entries:
 1. Notice that for PH the D screen says:

PH(insert:)

This means put a colon before the phone number if you want to be able to access it with TELCOM. Without the : TELCOM cannot perform its finding function for those numbers.

2. Notice that there are "MEMO:" and "CODE:" prompts. These are just to let you put in footnotes or special facts about a particular name and address entry. Under "CODE:" could be listed identifying information such as supplier, customer, friend, etc.
- H. From the Main Menu, place the cursor on ADRS.DO and press ENTER. Look at the entry you just placed using DATA or

DATA10. If you already had several entries in ADRS.DO, you will notice that the new one is placed differently:

```
EDWARD P. JOHNSON          AMALGAMATED
METAL SUPPLY              3432 EAST FREMONT
DALLAS                    TX75342:1-215-534-1212
SLOW DELIVERY
SUPPLIER
```

Information put in with DATA or DATA10 is orderly. Each fact starts at exactly the same place as those for the same category of other entries using the same D screen. Later on, we will go over the things you can do with the names and addresses in the ADRS.DO file that you put in with DATA or DATA10.

4. Other Screens

The DATA or DATA10 program provides two other screens besides DADRS. They are:

- A. DNOTE, which puts info into the NOTE.DO file (which can be accessed by SCHEDL).
- B. DINV, which puts inventory facts into a document file you can call anything you want. INVEN is the name given it, but you might have different inventory files for different kinds of stock. Here is an example of its screen:

```
ITEM: [REDACTED] INV#: [REDACTED]
SUPPLIER: [REDACTED]
DESCRIPT: [REDACTED]
[REDACTED]
CAT #: [REDACTED] PKGD: [REDACTED] PER: [REDACTED]
HOW PRICED: [REDACTED] PER: [REDACTED]
PRICE PER PACKAGE: [REDACTED]
WHSE LOC: [REDACTED] F3>Saves F8>Menu
```

- C. You can also create any screen you want to organize for any sets of information or groups of facts about dates, things, or people.

Below we list some of the types of screens possible with DATA or DATA10. Some are provided with the program, others you make yourself according to the instructions for making a new D screen given in this chapter. But remember: When you are ready to work with those other screens, you can load them easily by following the loading procedures outlined earlier in Sec. 2. Start a new text file for each one, naming it to match the name on the cassette. Rewind the cassette to its

beginning. Press PLAY into its locked position. Press F2, and at the "Load from:" prompt, type in the name and press ENTER.

D screens are limited in size to the 40-character by 8-line screen of the Model 100 and M-10. However, that need not stop you from keeping an amount of information about a particular subject which would require a larger-size physical screen to display all at once. When you design your D screens in such cases, make several of the fields large and very general, with prompts such as "Fact:" or "Comments:" or simply "Data:." When you have filled one screen, simply press F3 and start your next one with the same headings as the first (which will provide enough information to find it later when searching for it), ending one of the fields you will search with A, B, C, etc. Then just keep entering the facts you need to record about that subject on the new screen.

Think of these records like 3 by 5 file cards. Anyone who has prepared a college research paper has certainly filled out many of those. When one card is full, you simply start a new one with the same headings as the first, and you write "Card B" on it. You then file them together, and when you want to review the material, you study card A, then card B, and so on. DATA or DATA10 is like an electronic 3 by 5 card system, although of course it has many added features.

Screen Format Suggestions

Here is a listing of D screen format ideas, some of which we discuss later as examples for you to experiment with. After you learn how easy it is to make a D screen, you will want to create new ones to fit your needs exactly.

- A. Customer names and pertinent information about sales such as the No. 1, No. 2, and No. 3 best-selling products stocked, date of last order, amount of last month's orders, credit terms, monthly sales volume, contacts, delivery requirements, shipping or billing address. (See Sec. 5 below for how to make a new D screen to format this data.)
- B. Supplier listing with company names, products supplied, stock numbers, current pricing, credit allowances, lead times, and addresses, phone numbers, and contact persons. (See Sec. 5 below for how to make a new D screen to format this data.)
- C. Inventory listing with items, inventory numbers, suggested suppliers, description, brand names, sizes, number of items in case, category numbers, warehouse locations, costs/unit, amount on

- hand, amount in last delivery, or other facts. (An example of a screen for this is supplied later as DINV.)
- D. Employee listing with dates of birth, home addresses, phone numbers, training, expertise, dates of employment, spouses' names, number of children (including even children's names), disabilities, special medication required, current salaries, and dates of last reviews. (See Sec. 5 below for how to make a new D screen to format this data.)
 - E. Information you have collected or are collecting on a form that you would like to access, list (print), or sort. You can enter any information (credit standing, medical history, etc.), but it must fit on a single screen. (See Sec. 5 below for how to make a new D screen to format this data.)
 - F. Schedules (for building a NOTE.DO file) showing dates, appointments, places, tasks, persons to meet, numbers to call, codes to describe information as personal or business, topics to discuss. (An example of a screen for this is supplied later as DNOTE.)
 - G. Your executive directory of names, company names, addresses, phone numbers (both business and personal), every entry annotated with its own pertinent notes.
 - H. Educational aids for students, teachers, or anyone who is studying a subject where facts can be organized. A "fact screen" can be created for an informational data base—for example, a data base on countries or states with their capitals, populations, principal crops, and manufactured items.
 - I. Recreational uses—for example, sports. You could do a professional team data base including players' names, positions, strengths, weaknesses, special performance records, etc.

5. Making a New D Screen

Here is how to make a new D screen format:

- A. From the Main Menu put the cursor on TEXT and press ENTER.
- B. The screen will say,

File to edit?

Type in a name—the letter D and up to four other letters. Make the name fit what you will be inputting. For example, one for a supplier listing might be DSUPL. Press ENTER.

- C. Now type in your first category, followed by a colon. (This will be your first prompt.)
- D. Holding down SHIFT and GRPH at the same time, press the letter X. You will notice that it produces a complete block symbol. On the Olivetti M-10 the block symbol is produced by SHIFT/GRPH and semicolon (;).
- E. Continue typing this block symbol for the length of space that you want to allow for the answer to your first category prompt.
- F. When you have typed in all the block symbols for that space requirement, move the cursor with the space bar only.
- G. At the bottom of the screen you can put F3>Saves F8>Menu. This reminder will alert you to send your data to its file with the F3 function key before returning to the Main Menu. It is not really necessary, though, because when you are doing DATA or DATA10 you can also push the LABEL key and the bottom of the screen will remind you what each function key does.
- H. When you have finished designing your screen, press F8. Do not press ENTER.

Here are some rules to remember when creating a new D screen:

- 1. Do not use the arrows to move across the screen to a new position after you complete a block section. (If you find you have an irregular screen when you are doing DATA or DATA10, you have probably used arrows.) You can use arrows to go back and change items you have already typed in, though.
- 2. Only use the space bar to move the cursor to the next position where you want to type in a prompt word.
- 3. Do not use the carriage return (or ENTER key) at all when creating a D screen. The carriage return will keep the screen from working with the DATA or DATA10 program.
- 4. Do not make your D screen any larger than the physical screen (40 characters by 8 lines). If you do make the format larger than that, when you do DATA or DATA10 you will get the error message

Bad screen format

- 5. Each block of GRPH X characters that you type must end with a space inserted manually by you with the space bar. This includes the last block. If you fail to type a space before a prompt word that is out in the middle of the screen (in other words not flush to the left), that prompt simply will not appear when you do the program. If you

fail to end your last block on the screen with a space, entered with the space bar, you will get an ERROR 5 message when you do the program.

6. You can have a maximum of 16 prompts (and blanks). These are called "fields."

6. What You Can Do with Your Data Files

DATA or DATA10 is an extremely rapid way to enter information you are listing into a file. But rapidity is not its only advantage. You can do many things with your document files that have lists in them if they are compiled by this program. The following are some facts and points concerning how to use these lists effectively.

- A. Remember, you can put your information into any text file (i.e., under any document file name). You can call up any you have already created to input data, or you can create a new one by making up a new name. But, although you can use any file, it makes sense to use ADRS.DO with DADRS and NOTE.DO with DNOTE because you can do some nice screen search functions with those files and their associated programs ADDRSS and SCHEDL.
- B. Earlier we showed the screen for DADRS, and then its entry in the ADRS.DO file. Here is the screen for DNOTE:

```
PERSONAL* OR BUSNS! : DATE:
APPOINTEE:
PLACE:
PURPOSE:
# TO CALL:
TASK:
F3>Saves F8>Menu
```

Here is the entry in NOTE.DO:

```
! 5/16/83 Robert Thompson      10:30 AM
RADIO SHACK STORE             Check
out new printer                351-7865
Ask him about speed and
compatibility with Model 100
```

- C. Reviewing, editing, or changing records: Sometimes you will want to call up a single record onto the screen to review it or just to print it by itself. Or often you will want to edit and revise a number of

records, either to correct errors or to maintain or update your files. To do so, remember:

1. You can review and edit any record quickly anytime you are in the data entry mode. You are in this mode when you go into DATA or DATA10 and enter your D screen name, then the document file name where the data is stored. When the blank input screen appears, you are not only ready to put in data, you are ready to review or edit.
2. To review or edit, simply go to the field you want to find (search). Move the cursor to that field with the ENTER key.
3. Type in the letters or number you want the computer to look for. You can type in anything from one letter or number to the whole keyword as long as you start from the beginning of the word or number.
4. Press the F1 (find) function key.
5. In a few seconds (10 seconds for a 100-record file), the screen will fill with the first occurrence of the record that has the key letter(s) or word in the file being searched.
6. You can make any changes in any field you wish. You have the full editing functions just like you were making an entry for the first time. Just go to the field that you want to change:
 - You can erase by backspacing or by using SHIFT/DELETE (depending on whether you put the cursor before or after the entry).
 - You can simply press the ESC key, and erase the entire field entry.
 - You can type in the new information.
 - Press F1 or F3 (see item 9 below for when to use which key) and the changed record will be stored in the file.
7. Abort feature. If you are making a correction and you change your mind, you can press F8, and abort the correction. That is, of course, any time before you press F3. When you press F8 while editing, it will take you back to the input screen and the changes you erased, as well as any new ones you typed in, will be ignored (i.e., the original record will be unchanged).
8. Press F1 to save any change and keep on looking for other places you want to correct. Press F3 to save any change and return to the blank input screen.
9. Press F1 also if you do not want to make any changes, but you want to keep on searching. Once F1 has been pressed, the

screen will fill again with the next occurrence of the keyword or key character(s) in the search field.

10. After the last occurrence of the keyword or key character(s), when you press F1 the words

No match

will appear on the screen for 2 seconds, and then you will be back at the blank input screen.

11. You can edit or review any time, whether you are in the middle of inputting data for the first time or are recalling an old file.

7. Printing Out Your Listings

You have the ability to print out your records in many different ways. Options include:

- A. Mailing address labels
 1. Tractor feed (peel and stick)
 2. Envelopes
- B. Address and salutation lines for preprinted letters
- C. Selected information from records
- D. Columnar listings—charts of selected information from records for easy comparison
- E. Spread listings—inventory picking tickets or salesman call reports

We will show you a typical printout sequence that will take you through all the screen prompts and teach you how to control the listing options. In Sec. 8, we will then describe many different listings and screen variations.

As an illustration, we will describe step by step how to do a mailing address label printout of the tractor-fed, peel-and-stick sort. We will show selection and other options and tell about different techniques that can be used for other applications.

Note:

For these printouts we will be using the function keys F3 and F5. Simply press the LABEL key to remind yourself of their functions whenever necessary.

At this time, load your labels for tractor feed correctly into your printer. Align them properly so that the printing head is ready to print at the top line.

Step 1. Place the cursor over DATA and press ENTER. The screen will display the files and ask:

D screen name?

(This is, of course, the same sequence explained earlier for building your document files. You can print out a list any time you are inputting it or building a file; you can also print a list you prepared earlier.)

Type in the D screen name you used to build the file you are going to print as the list. That screen must have been loaded into your Model 100 or M-10 earlier. Press ENTER.

Step 2. Next the screen will say:

Document file name?

Type in the file name under which you stored the records you want to print. But remember: The file must have been inputted with the D screen that you specified earlier for this sequence to work. Press ENTER.

Step 3. You will immediately be shown your input screen just as though you were going to enter data (information). If you have additional records to place into the file, you can do so at this time. *Remember:* Press F3 to save a completed record to the file.

Step 4. After you have completed entering data or if you have nothing new to add, simply press F5 to initiate the listing (printing) sequence.

Step 5. If you have printed out records from this D screen previously, you will be given a chance to default to a favorite format. The screen will now say:

List [file name] in [number] line form (ENTER=Y)?

For example, it might say,

List ADRS in 6 line form (ENTER=Y)?

In other words, it will show whatever document file name you entered under step 2, along with how the D screen has been formatted to print it out.

If you want the same type of label format (layout) as before, you just

press ENTER. And once ENTER is pressed, all the following steps down to 12 will be bypassed.

Since we are just introducing the printout concept to you, we will assume you have not formatted for the function previously. In that case, the screen message shown above will not appear—that is, you will not be given the chance to default to a favorite format since none as yet exists. Instead, you must create a format, as we now proceed to explain. (However, please remember that the D screen you create will be automatically encoded so on later occasions you *will* be given the option to default back to it. Below we will discuss this ability of DATA and DATA10 to remember how you formatted and printed last, under “Default to last format.”)

Step 6. Assuming there is no format for you to default to, the screen will say:

How many lines per form (ENTER=1)?

This question does not ask how many lines you want to print, but, instead, how many lines you want each record to take up, whether you intend to print on all of them or not.

For example, for most peel-and-stick address labels you will enter 6 even though you will print on only four or five lines. This is because the labels are usually five lines long with one line between each label. So if you print on lines 1 through 4 or 5, you will need one line (line 6) reserved so that the next address starts printing on the first line of the next label.

Note:

If you are printing on larger labels or labels spaced more than one line apart, you need to enter the line length of the label plus the line spacing between the labels.

Type in 6 (or whatever number of lines you want) and press ENTER.

Note:

After the question “How many lines per form?” you will see the phrase (ENTER=1). This is called a “default.” You will see this after nearly every screen question in the listing sequence. The default offered is always the answer most commonly given to the question. All you do is press ENTER, and the number or answer shown as the default will automatically be entered. The reason the default for the above question is 1 is because most of the time people want to print out one-line lists. Of course, if you do address labels most of the time, this default will not help you; but you will find others to come that will.

Step 7. The screen will now say:

TO FORMAT YOUR PRINTOUT...
 I will show you the input screen.
 Please put in each field the number of
 the line where you want it to appear
 on the label. Leave blank the fields
 you don't want to print, then press F3.

After reading this, press ENTER. You will then be shown the input screen. Simply type into the fields that you want to appear on the label the number of each line where you want it to appear on the printed label. You can put any line number (up to the number you typed in to answer "How many lines per form?") on any field. That is, you can mix them up in any order and they will print on whatever line you designate.

Note:

Remember that when printing mailing address labels five lines long that have one line between labels, you have five lines to print on. But it is wisest to print only on four of them. Doing so makes it a whole lot easier to line up your printing head. You do not have to be "right on the money." Should you be a little off in your spacing, it will take a lot of labels to get out of sync if you have left yourself an extra line.

Here is an example of the DADRS input screen with the line numbers typed in to print out mailing address labels. Note that the "PH" (phone number), "MEMO," and "CODE" fields are left blank because that information does not appear on a mailing label.

	DADRS
FIRST:	LAST:
COMPANY:	
STREET:	
CITY:	STATE: ZIP:
PH(insert:)	
MEMO:	
CODE:	F3>Saves F8>Menu

Now press F3 to save the layout or format you have just designed.

Step 8. The screen will now say:

Left margin (ENTER=Ø)?

Sometimes the left-hand margin setting is not necessary to use because you will be able to line up the printing head in the correct

position on the labels with a 0 setting. If that is the case, just press ENTER for a default to the 0 setting.

In other cases, however, you will need to set a margin width:

- A. If your printer's tractor feed mechanism does not permit you to position the label at the 0 setting.
- B. If you are printing envelopes or using other applications where you want the address printed further over on the paper than the 0 setting.

In such instances, type in the left-hand margin setting you desire, i.e., the number of spaces from the left edge at which you wish the label to begin printing. Then press ENTER.

Step 9. Next the screen will say:

Pause between records (ENTER=N)?

This pause between labels is for hand-fed applications such as envelopes or preprinted letters. It is for any situation where you need to stop the printer to adjust the paper between each label's printing. If you do need to pause, type Y for "yes." (You will be prompted to press ENTER after each label is printed.) If you do not want to pause between labels, just press ENTER.

Step 10. Next the screen will say:

Output to: (ENTER=printer)?

This is what we call "redirectable output." Mostly you will just want to output to a parallel line printer, so you simply press ENTER. But sometimes you may want to write to a new file or to a cassette. To write to a new file, just type in the file name and press ENTER. To write to cassette, type in CAS: followed by the file name after the colon and press ENTER. Make sure the cassette player is connected, the tape is rewound, and the RECORD and PLAY buttons are locked into their on positions.

Not only do you have the ability to write to an existing file, but to add to that file. Simply type ADD: before the file name. This "add" feature lets you build up a report about several different records not related to one another as a group (in other words, they could not as a group be selected by a search technique). But remember when adding, if you do not insert the ADD: signal before the file name, you will erase everything in the file and replace it with what you are inputting to it.

The “add” feature also lets you add records to a text document such as a letter. But often this is better accomplished with the merge function (function key F6). The merge feature is discussed in detail in Sec. 9 of this chapter, below.

You can direct output to any device, including using the COM: signal through the RS232 port. See your Model 100 or M-10 manual and the material on redirectable output in the SCRIPSIT 100 and PRNT10 chapter.

Step 11. Next the screen will say:

Print compacted (ENTER=Y)?

For address labels, you press ENTER (for “yes”). Here is why: If you type in N, the records will be printed in columns. This provides for an orderly display of information, so that as the records are spread across a sheet each piece of data will be printed in line with all others like it, e.g., all phone numbers will be in the same column. But printing in the columnar spacing fashion can result in fields being separated by up to 10 or 15 spaces (exactly as they have been placed on your D screen), or as little as one or two spaces. The point is, you cannot be sure of what spacing will result when you print out in columns, but with address labels you *need* to be sure. And when you press ENTER for “yes,” you get only one space separating each field printed on the same line. Therefore, since you will want to print city, state, and zip code on the same line, and labels are not very wide, you need to press ENTER. (If you do press N, however, remember that there is no need to press ENTER afterward. The next message will appear automatically.)

Step 12. The screen will now say:

Print all records (ENTER=Y)?

This just means, “Do you want to print all the records such as names and addresses that you have in the file, or do you want the computer to search out and only print a certain number that you select?” You will be able to select on any field, on either an alphabetic or a numeric basis. For example, you might only want to mail to people in the state of Wyoming, or to those with certain zip codes, or to those in a certain city. Maybe you only want one label for a particular person. If you want to print all the records in the file, you press ENTER for the “yes” default.

If you default and pressed ENTER for “yes,” all the steps down to 17 are automatically bypassed. So for illustration purposes, we will assume you do not want to default. Type N for “no,” and we will continue on to step 13.

Step 13. After typing in N, you will immediately be shown the next screen, which will say:

```
TO PRINT ONLY SELECTED RECORDS
I will show you the input screen.
Please move to the field on
which you wish to select,
and press F3.
```

You will once more be shown the input screen. Simply use the ENTER key to go from field to field, stopping at the one you want to select your records by. For example, if you want to select by state, put the cursor bar on the state field, if by city, on the city field, or if by zip code, on the zip code field. Then press F3.

If you wish, you can select on a field that you do not intend to print. For example, you might select on the MEMO field for DADRS, choosing only suppliers from a list of suppliers and customers.

Step 14. Next the screen will say:

```
Is this alphabetic (ENTER=Y)?
```

If it is numeric, type in N. If it is alphabetic, just press ENTER (the default).

Step 15. Now the screen will say:

```
Start at (ENTER=first)?
```

If you are selecting on the basis of state, for example, and want to print out just Texas addresses, you type in T as your starting letter and then press ENTER.

The default “first” here means “from the beginning,” i.e., it refers to all starting letters or numbers. So, for example, if you wanted to print out entries by state starting with the letter A to a certain point, or if you wanted to print out entries by zip code beginning with your starting number, you would simply press ENTER for this prompt.

Step 16. Next the screen will say:

End at (ENTER=last)?

You must type in the ending letters (or numbers for a numeric field) where you want the search to stop. If for step 15 you started at the beginning of the A's, for example, you might want to stop at the end of the A's, which would mean you should type in AZ here. Or if you were just doing Texas and had typed in T for step 15, you would type in TX here. Then press ENTER.

The default (ENTER=last) here means "all the way to the end." In any event, when you have pressed ENTER, whether as a default or after a letter or number, the next screen will appear immediately.

Step 17. The new screen will say:

Press ENTER when printer ready

Make certain your printer is connected and on and the paper is in place. Then press ENTER. Your labels or listings will begin printing exactly as you have specified them. While they are printing, in the lower left-hand corner of the screen will appear the words "Record 1," "Record 2," "Record 3," etc., as each record prints. When the printing is complete, you will be returned back to the input screen.

Default to last format

Recall back in step 5 that we said DATA or DATA10 remembers how you formatted and printed your last labels or other list configuration. At this time go back and review steps 1 through 5 to the point where you are ready to list (at the blank input screen), then press F5.

The screen will immediately say:

List [file name] in [number] line form (ENTER=Y)?

For example, it could say "List NOTE in 5 line form (ENTER=Y)?" [Remember: This message will appear only from a D screen that you have listed (printed) at least one time before.]

1. Assuming you want the same format, press ENTER.
2. Next the screen will say,

Print all records (ENTER=Y)?

If you answer “yes” (by pressing ENTER), your next prompt will be,

Press ENTER when printer ready

3. If, however, you want to print selected records (indicated by typing in N after “Print all records?”), you will now be given the opportunity to select on a field. In this situation you will bypass only the format steps, not the selection steps.

If you ever want to reencode (reformat) your D screen to have a new label layout, type in N when the screen says,

List [file name] in [number] line form (ENTER=Y)?

Then reformat, going through all the formatting steps explained above. Whatever you insert as the new format will be displayed on the D screen from then on when you press F5 to list from it.

We have now completed all the steps needed to print out listings. In Sec. 8 following, various listing options will be discussed, along with screen examples of how to set them up. Look them over for some good ideas. You, of course, will have many new ideas of your own. When you combine the tremendous flexibility of being able to design your own D screens with the versatile listing capabilities offered by DATA or DATA10, you have countless possibilities for record access and manipulation applications.

Remember, DATA or DATA10 has three wonderful listing characteristics:

- First, you can print out your listing in many different configurations—and telling the computer how you want the list formatted is easily done.
- Second, DATA or DATA10 remembers how you formatted your last printout on each D screen. It lets you default to that format by just pressing ENTER to print labels or lists in your favorite layout.
- Third, DATA or DATA10 allows you to print out only those labels you select, and you can select on any field of the D screen, either alphabetically or numerically.

8. Examples

In order to show you some examples of the printout and listing capabilities of DATA or DATA10, we will enter a group of names and ad-

dresses using the DADRS screen. We will fill out the entries completely so we can fully demonstrate the various listing options. Notice that there are two fields in DADRS, "MEMO" and "CODE," placed there so special information about the person or company can be filed. Here is the layout of the DADRS screen:

```

                                DADRS
FIRST:                          LAST:
COMPANY:
STREET:
CITY:                           STATE:   ZIP:
PH(insert:)
MEMO:
CODE:                           F3>Saves F8>Menu

```

Of course, you can design and prepare any D screen you desire for names and addresses. But we want to emphasize the possibilities you have with your DATA or DATA10 program when you include fields like "MEMO" and "CODE." You can call them by any names you like, and you can have more than two. Special information fields can offer you some very nice advantages when you use them with the search and selection functions of DATA or DATA10.

For the test group, we will use the "CODE" field to show suppliers, customers (one example set up to show how to do a salutation line for a preprinted letter), friends, and consultants. And we will use these as the code words for the various selection and format variations discussed.

First we access DATA or DATA10 and input the information for each field following the steps explained in Sec. 7 of this chapter.

Note:

If you make a mistake while entering information into a field, just press the ESC key. It will erase everything you have typed for that field, and you can then type in the correct entry.

Earlier we showed you how the DATA or DATA10 entries appear in the .DO file. As we mentioned, some of the entries run together in the file and do not look like they are regularly placed. They *are* accurately placed in the computer's memory, however. It is just that the screen wraparound makes what are in reality comparable entries appear differently placed on the visual screen. When printed out with DATA or DATA10, as you will see, they will be orderly and properly spaced.

In the following examples, we will show you six different selection/printout variations:

- A. A complete printout of a listing, showing all entries, selected by state (Texas) only.
- B. Mailing address labels selected by suppliers only.
- C. Columnar printout of consultants giving last names of contacts, company names, and phone numbers, selected by consultant.
- D. An example of an address and a salutation line for a preprinted letter. This could be a form letter that you preprinted in many copies using SCRIPSIT 100 or PRNT10 on continuous-form paper. You would simply refeed the paper and print each letter with a different name and salutation line, each on its correct line each with the correct left-hand margin.
- E. A spread listing. Customer information printed out over a larger area. It can be formatted with a D screen specially designed by you and used as a salesman's call report with room for hand-written notations.
- F. Out-of-original-order printout, each entry showing state first, last name, then "CODE," selected by state (all Texas addresses in our example).

In each of the following examples, the same explanation sequence is followed:

- 1. Each screen prompt is shown or described and its entry given.
- 2. An example of what the printout looks like follows the explanation.

Examples

Example A: A complete printout of a listing, showing all entries, selected by state (Texas) only. The screen will show:

How many lines per form (ENTER=1)?

Type in 8, then press ENTER. To format, you will be shown the input screen; type in the numbers as shown:

	DADRS
FIRST:1	LAST:1
COMPANY:2	
STREET:3	
CITY:4	STATE:4 ZIP:4
PH(insert:)5	
MEMO:6	
CODE:7	

Then press F3. The screen will say,

Left margin (ENTER=Ø)?

Type in 16 (or however many spaces from the left you want the entries to appear) and press ENTER. The screen will then say:

Pause between records (ENTER=N)?

Press ENTER. The screen will then say:

Output to: (ENTER=printer)?

Just press ENTER. Next the screen will ask:

Print compacted (ENTER=Y)?

Type in N. Then the screen will say:

Print all records (ENTER=Y)?

Type in N again. Now you will be shown the input screen once more. Move the cursor to "STATE:" with the ENTER key and then press F3. The screen will say:

Is this alphabetic (ENTER=Y)?

Just press ENTER. The screen will then ask:

Start at (ENTER=first)?

Type in T. Then the screen will ask:

End at (ENTER=last)?

Type in TX or press ENTER. The screen will say:

Press ENTER when printer ready

Make sure your printer is set to operate and press ENTER.

Your printout might look like this:

Jeff Stewart
35467 Stevenson St.
Dallas
TX 75290
453-7865
Birthday 11/13, wife Susie
FRIEND

Marty Dickson
456 Bowen
Dallas
TX 75254
670-9878
Bday 12/19, Wife Ann, Bday 10/13
FRIEND

If you had pressed ENTER at the prompt "Print compacted (ENTER = Y)?" it would look like this without extra spacing between the first and last names:

Jerry Mobley
Mobley & Mobley
34590 Hargrove St.
Ft. Worth
TX 60611
1-817-768-9876
Accounting assistance
CONSULTANT

Michael Noonan
Financial Partners
6467 Shady Lane
Dallas
TX 87654
564-9876
Venture capital
CONSULTANT

Example B: Mailing address labels, selected by suppliers only. The screen will say:

How many lines per form (ENTER=1)?

Type in 6, then press ENTER. To format you will be shown the input screen; type in the numbers as shown:

```

                                DADRS
FIRST:1                        LAST:1
COMPANY:2
STREET:3
CITY:4                        STATE:4      ZIP:4
PH(insert:)
MEMO:
CODE:

```

Then press F3. The screen will show:

Left margin (ENTER=Ø)?

Type in 15 and press ENTER. The screen will then ask:

Pause between records (ENTER=N)?

Press ENTER unless you are hand-feeding envelopes. The screen will then say:

Output to: (ENTER=printer)?

Just press ENTER. Next the screen will ask:

Print compacted (ENTER=Y)?

Press ENTER. Then the screen will say:

Print all records (ENTER=Y)?

Type in N. Now you will be shown the input screen again. Move the cursor to "CODE:" with the ENTER key and then press F3. The screen will ask:

Is this alphabetic (ENTER=Y)?

Just press ENTER. Then the screen will say:

Start at (ENTER=first)?

Type in S (for “supplier” code). The screen will next ask:

End at (ENTER=last)?

Type in S (because “supplier” was the only S) or press ENTER. The screen will say:

Press ENTER when printer ready

Check to see that the printer is on and the paper in position, then press ENTER.

Your printed list will look like this:

Ralph Thompson
Thompson Tool Company
2334 Fremont Ave.
Bon Vista CA 45322

Edward C. Barnes
Apex Die Works
456 E. Nona Ave.
Ferndale NY 10045

Johnathan Billingsley
Billingsley Products
3422 Main St.
Pleasantville NY 65434

Gordon Smith
Chicago Wholesale Distributors
345 La Salle Ave.
Chicago IL 45632

Example C: A columnar printout of consultants giving last names of contacts, company names, and phone numbers, selected by consultant. The screen will say:

How many lines per form (ENTER=1)?

Just press ENTER. To format, you will be shown the input screen; type in the numbers as shown:

```

DADRS
FIRST:      LAST:1
COMPANY:1
STREET:
CITY:      STATE:  ZIP:
PH(insert: )1
MEMO:
CODE:
```


Press F3. The screen will say:

Left margin (ENTER=Ø)?

Type in 8 and press ENTER. The screen will then ask:

Pause between records (ENTER=N)?

Press ENTER. Then the screen will say:

Output to: (ENTER=printer)?

Just press ENTER. The screen will ask:

Print compacted (ENTER=Y)?

Type in N. Next the screen will say:

Print all records (ENTER=Y)?

Type in N once more. Now you will be shown the input screen again. Move the cursor to "CODE:" with the ENTER key and then press F3. The screen will say:

Is this alphabetic (ENTER=Y)?

Just press ENTER. Then the screen will ask:

Start at (ENTER=first)?

Type in C for "consultant" and press ENTER. Next the screen will say:

End at (ENTER=last)?

Type in CO and press ENTER. Finally the screen will say:

Press ENTER when printer ready

If your printer is set to run, press ENTER.
Your printout will look like this:

Mobley
Noonan

Mobley & Mobley
Financial Partners

1-817-768-9876
564-9876

Example D: Example of an address and a salutation line for a preprinted letter. The screen will read:

How many lines per form (ENTER=1)?

Type in 66, then press ENTER (66 because that is the length of letter-size paper). To format, you will be shown the input screen; type in the numbers as shown:

```

                DADRS
FIRST:1        LAST:1
COMPANY:2
STREET:3
CITY:4         STATE:4   ZIP:4
PH(insert:)
MEMO:6
CODE:

```

Press F3. The screen will say:

Left margin (ENTER=0)?

Type in 8 and press ENTER. Then the screen will ask:

Pause between records (ENTER=N)?

Press ENTER. Next the screen will say:

Output to: (ENTER=printer)?

Just press ENTER. The screen will then say:

Print compacted (ENTER=Y)?

Just press ENTER. The screen will next say:

Print all records (ENTER=Y)?

Type in N. Now you will be shown the input screen again. Move the cursor to "LAST:" with the ENTER key and then press F3. The screen will read:

Is this alphabetic (ENTER=Y)?

Just press ENTER. The screen will ask:

Start at (ENTER=first)?

Type in Williams (because we are only printing out a single entry) and press ENTER. The screen will then ask:

End at (ENTER=last)?

Type in Williams and press ENTER. The screen will finally say:

Press ENTER when printer ready

Check to see that your printer is running, then press ENTER.
Your printout will look like this:

Greg Williams
Western Distribution Center
2321 Marydale St.
Oakmont CA 76543

Dear Mr. Williams,

Example E: A spread listing. Customer information printed out over a larger area. It can be formatted with a D screen specially designed by you and used as a salesman's call report with room for hand-written notations. The screen will say:

How many lines per form (ENTER=1)?

Type in 15, then press ENTER. To format, you will be shown the input screen; type in the numbers as shown:

	DADRS	
FIRST:1	LAST:1	
COMPANY:3		
STREET:5		
CITY:7	STATE:7	ZIP:7
PH(insert:)10		
MEMO:13		
CODE:15		

Press F3. The screen will say:

Left margin (ENTER=0)?

Type in 8 and press ENTER. The screen will then ask:

Pause between records (ENTER=N)?

Press ENTER. Next the screen will say:

Output to: (ENTER=printer)?

Just press ENTER. Then the screen will say:

Print compacted (ENTER=Y)?

Type in N. The screen will ask next:

Print all records (ENTER=Y)?

Type in N. Now you will be shown the input screen again. Move the cursor to "CODE:" with the ENTER key and then press F3. The screen will say:

Is this alphabetic (ENTER=Y)?

Just press ENTER. Next the screen will ask:

Start at (ENTER=first)?

Type in CUS (if you want all customers) and press ENTER. Then the screen will say:

End at (ENTER=last)?

Type in CUS and press ENTER. The screen will finally say:

Press ENTER when printer ready

If your printer is ready, press ENTER.

The printout will look like this:

Samuel W. Phillips
Eastern Distributing Co.
56 Newton Business Plaza
Philadelphia PA 76587

1-345-234-8767

Slow Pay, 16 slsmen,gd coverage

CUSTOMER

Example F: Out-of-original-order printout, each entry showing state first, last name, then "CODE," selected by state (all Texas addresses in our example). The screen will say:

How many lines per form (ENTER=1)?

Type in 5, then press ENTER. To format, you will be shown the input screen; type in the numbers as shown:

 DADRS
FIRST: LAST:2
COMPANY:
STREET:
CITY: STATE:1 ZIP:
PH(insert:)4
MEMO:
CODE:3

Press F3. The screen will say:

Left margin (ENTER=0)?

Type in 16 and press ENTER. Then the screen will say:

Pause between records (ENTER=N)?

Press ENTER. Next the screen will ask:

Output to: (ENTER=printer)?

Just press ENTER. The screen will then say:

Print compacted (ENTER=Y)?

Just press ENTER. Then the screen will ask:

Print all records (ENTER=Y)?

Type in N. Now you will be shown the input screen again. Move the cursor to "STATE:" with the ENTER key and then press F3. The screen will say:

Is this alphabetic (ENTER=Y)?

Just press ENTER. Next the screen will ask:

Start at (ENTER=first)?

Type in T and press ENTER. Next the screen will ask:

End at (ENTER=last)?

Type in TX and press ENTER. Finally the screen will say:

Press ENTER when printer ready

If your printer is ready, press ENTER.

The printout will look like this:

TX
Stewart
FRIEND
453-7865

TX
Dickson
FRIEND
670-9878

TX
Mobley
CONSULTANT
1-817-768-9876

TX
Noonan
CONSULTANT
564-9876

9. Merge

DATA or DATA10 has the wonderful capacity to merge any information from any record that you entered with it into any text. The merge key (F6) allows you to insert the information in each field strategically into any text, and print out any field exactly where you want it.

You can prepare forms and fill them out with selected fields from all or selected records. And you can prepare letters that have up to 16 pieces of information inserted in as many places as you want, each letter uniquely addressed and personalized for each individual on your list.

The techniques for doing this are very simple.

You must first prepare your text.

1. Everywhere you want information from your D screen to appear, insert the caret symbol ^ followed by the number of the field, e.g., ^01. (The fields are numbered 01 through 16, in the same order as they appear on the D input screen when you move the cursor with the down arrow or by pressing ENTER.) You must use two characters for the number—either ^01 or ^1 followed by a space. (Never use the CTRL key for the ^ symbol, only SHIFT 6.)
2. Format your text so it will print out completely in the style and layout you want it to look like in its final form (i.e., you must enter it into a file in that formatted version). The best way to do that is with SCRIPSIT 100 or PRNT10. Prepare your form and print it out with SCRIPSIT 100 or PRNT10, experimenting until you are satisfied with the layout.
3. When you print out the form through SCRIPSIT 100 or PRNT10, it will have ^1, ^4, ^8, etc., printed throughout, wherever you decided you wanted information from your records inserted.
4. Now save your formatted version to a new file. Do this by: (a) Going to your WSPEC file and changing it so that SCRIPSIT 100 or PRNT10 “prints out” to a file name. Go to WSPEC and type in the file name under the “Output to:” prompt. This is accomplished by deleting the “LPT:” prompt and typing in the file name (without a colon). For example,

Output to:
MERGPT

(b) Go to SCRIPSIT 100 or PRNT10 and “print” the form you have typed up with the carets and numbers, with the WSPEC outputting to a file name. That file name, where the formatted form is saved, is the “merge file name” you will be asked for when you use the merge technique.

You will need to experiment one time through to perfect the format of your form. After you have done one merge printout, you can see if the size of your inserted fields has upset the format that you created. Sometimes long fields will throw off your spacing. Just go into your merge file and insert a carriage return or some spaces where, on the printout, it looked like it needed them. In other words, you may have to compensate to allow for some long fields you have inserted.

Usually it takes some adjustment to get a form perfectly set for the type of fields you are inserting. You really cannot tell until you have actually done one or two trial merges. But once you get it set up right, you will have it to use permanently.

After you have prepared your text, any time you want to merge, just press the F6 (merge) function key when you are in the input mode, that is, when you are in DATA or DATA10 and ready to enter information with a blank D screen in front of you. (Review Sec. 3 of this chapter, above.)

When you press F6, if you have merged records previously from this D screen, you will be given a chance to default to a favorite merge file and print instructions. In other words, you will be shown whatever document file name you entered in your second step of getting into DATA or DATA10 along with the merge file the D screen has been encoded to merge with. For example, the visual screen might now say,

Merge ADRS with MERGPT (ENTER=Y)?

If you want to merge with the form that is in that file, just press ENTER. You will then bypass the next four steps down to “Print all records (ENTER=Y)?”

Since we are just introducing the merge concept to you, however, we will assume you have not merged with this file previously. In that case, the visual screen will not offer a default. Instead it will say,

Merge [record file name] with [merge file name] (ENTER=Y)

Press N. The available files will be displayed, and the screen will say,

Merge file name?

Type in the name of the file where you saved the formatted form with the caret symbols.

Note:

At this time, DATA or DATA10 will take you through a sequence very similar to that explained in Sec. 7 above for printing out your listings. We will go through the screen questions here, but since you have already had a more detailed explanation of the prompts, we will be brief.

After typing in the merge file name, press ENTER. The screen will say,

Pause between records (ENTER=N)?

If you are hand-feeding paper, type in Y; if not, just press ENTER. The screen will then say

Output to: (ENTER=printer)?

See the discussion of this question back in Sec. 7 of this chapter. Also, you can write to a new file, or you can add to an existing file. To add to an existing file, type in Add: and the file name after the colon. This adding feature with the merge function lets you create reports made up of multiple unrelated records combined with another text document. For example, it allows you to build a purchase requisition from inventory or stock material records, or to do other, similar, report building.

Press ENTER. The screen will say,

Print compacted (ENTER=Y)?

Do you want the fields you have formatted to appear on the same line to be separated by only one space when printed out, or do you want the full separation that shows on the D screen? This layout decision is a matter of personal taste and choice. Type N for "no" and press ENTER, or just press ENTER for "yes."

The screen will then say,

Print all records (ENTER=Y)?

If you press ENTER, you will immediately be shown the message:

Press ENTER when printer ready

After making sure your printer is ready and pressing ENTER, you will have your merged document (examples of which are shown as Figs. 5.1 and 5.2 below). But if you type in N, you will go through almost exactly the same sequence explained in steps 13 through 16 back in Sec. 7. Go back and read that section again.

1. You will be shown the input screen again. Move the cursor to the field you want to select on and then press ENTER.
2. The screen will say:

Is this alphabetic (ENTER = Y)?

Answer accordingly (N if "no").

3. The screen will say:

Start at (ENTER=first)?

Type in the starting letter(s) or number(s) of the search word or number. Press ENTER.

4. The screen will say:

End at (ENTER=last)?

Type in the ending letter(s) or number(s) of the search word or number. Press ENTER.

5. The screen will say:

Press ENTER when printer ready

If your printer is ready, just press ENTER. Most commonly you will output to a parallel line printer. But whether you are printing, writing to a RAM file, or whatever, in the left-hand corner of the visual screen it will say "Record 1," "Record 2," "Record 3," etc., as each record is merged and "printed" as you indicated.

Nutrition Report

This report is concerning nutritional information in the ^01 group.

The following report is for food in portion indicated:

^02

Calories: ^03 Carbohydrates: ^04 grams Protein: ^05 grams
 Saturated fats: ^06 grams Unsaturated fats: ^07 grams
 Significant Vitamin and Mineral Assay
 Vitamin A: ^08 I.U. Vitamin B1: ^09 mg
 Vitamin B2: ^10 mg Niacin C: ^13 mg
 Vitamin B6: ^12 mg Vitamin C: ^13 mg
 Vitamin D: ^14 mg
 Potassium: ^15 mg Sodium: ^16 mg

This data may not be typical of all foods in the ^01 group.
 Often similar foods have widely different nutritional values.

Figure 5.1

Now we will show examples of a D screen used for merging, data entered with that screen, a merge file, and the completed, merged report.

1. Here is the D screen used for merging the data shown below:

```
Category: _____
Food/portion: _____
Calories: _____ Carbo gm: _____ Prot gm: _____
Sat fat gm: _____ Unsat fat gm: _____
Vit A IU: _____ B1 mg: _____ B2 mg: _____
Niacin mg: _____ Vit B6 mg: _____ Vit C mg: _____
Vit D IU: _____ Potassium mg: _____
Sodium mg: _____ F3>Saves F8>Menu
```

2. The following is a record entered with the screen shown in paragraph 1 above, as it appears in its TEXT file:

```
EGGS,DAIRY        CHED CHEESE/1 cubic inch 70 TR 4 3 2
230.10.08.06.09.03---14 119
```

3. Figure 5.1 is a form for merging as it appears with the caret number encoding (after having been formatted with SCRIPSIT 100 or PRNT10).
4. The form as printed out from DATA or DATA10, using the merge function to merge the document and the record, is shown in Fig. 5.2.

10. Screen Searching with ADDRSS and SCHEDL

If you go to the Main Menu and call up ADDRSS or SCHEDL, you will see that each has a "Find:" prompt. Press F1 and the screen will say:

Find:

Nutrition Report

This report is concerning nutritional information in the EGGS,DAIRY group.

The following report is for food in portion indicated:

CHED CHEESE/1 CUBIC INCH

Calories:70 Carbohydrates: TR grams Protein: 4 grams
Saturated fats: 3 grams Unsaturated fats: 3 grams

Significant Vitamin and Mineral Assay

Vitamin A: 230 I.U. Vitamin B1: .10 m
Vitamin B2:.09 mg Niacin: .06 mg
Vitamin B6: .09 mg Vitamin C: .03 mg
Vitamin D:--- mg
Potassium: 14 mg Sodium: 119 mg

This data may not be typical of all foods in the EGGS,DAIRY group. Often similar foods have widely different nutritional values.

Figure 5.2

- A. When "Find:" comes on the screen, type in any word or symbol connected with your entries that you wish to search (ADDRSS works with ADRS.DO and SCHEDL works with NOTE.DO). Then press ENTER and either program will begin the search. The word or symbol you type in can be from any of the categories (fields) you entered from DATA or DATA10.
- B. The program will prompt you with "More" after it displays some of the entries it has found containing the word or symbol you typed. Press F3. Now the visual screen will display other entries containing the word or symbol. When there are no more entries containing it, the "More" prompt will disappear.
- C. Look back at the example of the entry from DADRS earlier in this chapter. Notice how we put in "SUPPLIER" as an identifier. (You can have any number of codes, made up of either words or numbers. How about "FRIEND," "CUSTOMER," "THEATER," "RESTAURANT," etc.?) When you are in ADDRSS and want to search by means of those codes, just press F1, type in the code you want searched, press ENTER, and the program will find all the entries identified by it.
- D. You can also use the finding function to call up any listing containing information you may need from any of the categories on your D screens, using the first few letters of a name, or even an entire name, as the key letters or word to be searched.

11. Listing with ADDRSS and SCHEDL

Although you have full listing (selection/printing) capability right from DATA or DATA10, you can also do a listing from SCHEDL and ADDRSS for items that you entered with DATA or DATA10. The printout from SCHEDL or ADDRSS is not as usable as the one directly from DATA or DATA10 because you cannot format it and you cannot select only certain parts of records. But you *can* get a printout of all of the listings in a particular category. Maybe you would like a list of all the items on your personal schedule. Just press F5 (list find). After the colon in the “Lfind:” prompt, type in the code for the “personal” category. When discussing the DNOTE screen, you may remember, we used an asterisk. Let us assume you have used it also. Type in * and you will get a complete listing of all the items in your personal schedule that you entered into NOTE.DO with DATA or DATA10.

Of course, it works the same way in ADDRSS. Any words or a symbol common to a list gets you the whole list.

The following is a typical printout of a personal schedule obtained just by typing in an asterisk after pressing F5 (list find) in SCHEDL. We illustrate this procedure because there might be times when you want to use this listing method—say, perhaps, if you had DATA or DATA10 out of your RAM and needed a list right away.

Example:

```
*05/14/83TOM SMITH      FREEMAN
OLDSMOBILE             CHECK ON NEW
CAR                    354-7865
COMPARE PRICES

*5/14/83                7:00 PM
STATE FAIR MUSIC HALL  DINNER
AND PLAY
GET TICKETS FROM BUREAU DRAWER

*5/14/83    4:30 PM
NEIMAN MARCUS    PICK UP
SUIT FROM ALTERATIONS233-4557 EXT 211
```

12. Sorting

You can sort, using SORT or SORT10¹ (see Chap. 6), any text file you listed with DATA or DATA10 by means of any alphabetic or numeric

¹SORT and SORT10 are different names for similar programs; for an explanation of the distinction, see the beginning of Chap. 6.

category. (You could sort by zip codes, for example, or by cities or names.)

Note:

When you look in the file where entries are listed, some of them as displayed on the visual screen will not appear to be in the same location as an entries of the same type in another listing. Thus it may seem they will not sort properly with SORT or SORT10. But even though they do not look so, they are positioned in exactly the same location on every listing. On the visual screen and when you print, lines are broken at different places so as not to split words. This makes it look like some of the entries are out of sync. But inside the computer they are recorded perfectly, and will sort correctly from any category or field you choose (see Chap. 6).

13. Screen Searching, Other Files

Sometimes you may be faced with a situation where you killed DATA or DATA10 off your Menu, but you need to do a screen search on a file you built with that program. You can search files other than ADRS.DO and NOTE.DO by any category using the F1 key alone without going into DATA or DATA10. The method will not work in as fancy a fashion as an ADDRSS and SCHEDL search, and certainly not as elegantly as the DATA or DATA10 finding function, but it will work. Here is how:

- A. Go directly to the document (data) file you put the information into.
- B. Press F1. After the colon in the "String:" prompt, type in whatever words or code you want to find and press ENTER. The machine will seek and locate the first mention of that word.
- C. Press F1 again, then ENTER, and it will go to the next instance. Repeat this procedure.
- D. When the message finally reads "No match," there are no more instances to be found.

You can use zip codes, cities, names, etc., as key words or codes to search by with this method (just as you can with the other methods), and you can search and find any category you have filed data under (up to 16 categories per entry).

14. Conclusion

DATA or DATA10 is a superb program that turns your Model 100 or M-10 into a far more professional computer than perhaps you ever thought possible. You need to examine your business and personal life,

and explore applications where you can put the program's powerful features to work for you.

Moreover, DATA or DATA10 and SORT or SORT10 (explained in Chap. 6) together are not just programs, but a system expansion which greatly enhances the capability of your computer. Because they allow you to define your own screen, and to quickly tailor the printout to any of an infinite number of configurations, they in fact constitute hundreds of programs in one. They can be an inventory manager, a client/patient record maintenance program, a management agenda program, a time management program, and of course countless other applications. They can even be a personal entertainment program. One user made up a screen consisting of a food type, its calories, and other pertinent nutritional facts, looking up the information in reference books and entering the data with DATA or DATA10. He now can send for any of 300 foods by name and look up facts about his diet instantaneously. Another user made up a screen for the players of all the professional football teams, showing each player's name, jersey number, and physical dimensions, as well as facts about his performance records. While watching games on the television, he calls up the facts about any player by entering the jersey number as the search code. Of course, either of these users can print out any sort of report he wants on his subject simply by pressing a function key. The use of DATA or DATA10 in conjunction with SORT or SORT10 greatly expands the computer's capability and the user's range of applications for the device.

The SORT or SORT10 Program¹

1. Introduction

SORT or SORT10 is a wonderful addition to your Model 100 or M-10. When you combine its capabilities with the entry mechanics of DATA or DATA10, you have the capacity to sort any listing from any category alphabetically or numerically.

SORT or SORT10 does what is known as an “*in situ* sort.” This means your records are sorted in their own file. Therefore the program is not memory-intensive. It only requires 1K additional “free” memory while sorting.

Other sorting programs that consume available memory or require an amount of memory equivalent to or larger than the file itself can be designed to achieve faster sorts, but SORT or SORT10 provides reasonably rapid sorts with low memory consumption. It will sort 100 records in less than 1 minute. It works very simply and it is fast.

All you do to sort any list is to access the program from the Main Menu (place the cursor on SORT or SORT10 and press ENTER). The screen will show all the files, and then you choose which DATA or DATA10 format screen you want to work with. You will be shown the D screen you entered your information on, and you move the cursor to the category (field) you want the list sorted by. (Remember that you had up to 16 categories or fields you could enter items into with DATA or DATA10.) Then type in the file you wish to sort and press ENTER. Your computer will automatically sort by numeric or alphabetic value. You indicate which, by simply selecting the field to sort on and press-

¹SORT is a trademark of Tandy Radio Shack; SORT10 is the Olivetti trademark for a similar version of the same program.

ing ENTER, and the sort itself will start. Instead of pressing ENTER, pressing function keys F1 or F2 will give different sort options for numeric or alphabetic.

The first option is "uppercase fold," meaning it ignores whether any entry you are sorting was entered in uppercase or lowercase. In the second option, it can carry out a true numeric sort, which means numbers do not have to be written in the form 00001 as required by many programs.

It sounds easy, and it is. Now we give step-by-step instructions on how to load your programs and use SORT or SORT10.

2. Loading

- A. When you buy your programs, you will observe that each is on its own separate cassette. Place the cassette labeled SORT or SORT10 into your cassette player. Make sure your computer and cassette player are connected properly (see the instructions given in your manual).
- B. Rewind the tape completely. It may be rewound already, but make certain. Press the PLAY key into its locked position.
- C. There are two items that must be loaded into your Model 100 or M-10 in order to run the SORT or SORT10 program. They are easy to load. One is a BASIC file called SORT.BA. The other is a .CO (machine code) file that you already loaded when you did SCRIPSIT 100 or PRNT10 or DATA or DATA10. It is called CORTNS.CO.
- D. With the cassette player set up to operate as described, turn on your Model 100 or M-10. The Main Menu will display. With the cursor on BASIC, press ENTER. You will immediately be sent to BASIC and the screen will say,

Ok

- E. Press F2 and the screen will show:

Load "

You merely type in CAS:SORT and press ENTER. Automatically the cassette will start to run, and while it is running the screen will say:

Found: SORT

F. When the cassette stops, the screen will say

Ok

Then press F3. The screen will say:

Save "

Type in SORT or SORT10 and press ENTER. The screen will say

Ok

G. Then just press F8, and you will be returned to the Main Menu.

3. Getting Started

A. Go to the Main Menu, place the cursor over SORT or SORT10, and press ENTER. The screen will say:

Screen format name?

Remember, it is asking for the name of the D screen you entered your information (data) with (i.e., the one where you filled in the blanks).

B. Type in the name of the D screen and press ENTER.

C. The visual screen will say:

When I show you the screen format,
please go to the field you want to
sort on, and press ENTER, F1 or F2.

```
(Now, press any key to continue.)
Case Nbrs                                     Menu
  1      2      3      4      5      6      7      8
```

When you press any key, a view of the D screen format you selected will appear on the screen. You will not be able to type anything into any category, only move the cursor from field (category) to field (category) with the down or up arrows. Move the cursor to the field you want to sort by and press ENTER.

Note 1:

Normally SORT or SORT10 has uppercase fold (see explanation in Sec. 1 of this chapter, above). If you wish the sort *not* to ignore whether entries are upper- or lowercase, however, press F1 instead of ENTER. Then uppercase entries will be sorted ahead of lowercase ones.

Note 2:

If you are sorting on a numeric field and you want a true numeric sort, i.e., you want lower numeric values at the top of the list, press F2 instead of ENTER.

- D. The screen will show all the files and ask:

Data file name?

- E. Type in the name of the file you are sorting and press ENTER. (Be sure it is a file that you input using the D screen you are sorting by!)
- F. Before loading for sort, SORT or SORT10 will examine the lengths of your records. If they are of irregular lengths, the program will not sort them and the visual screen will show the following error message:

File has odd length records

This means, perhaps, that you accessed a file directly and changed something rather than using the editing function of DATA or DATA10; or perhaps you added some text to the file. All records have to be the same length (as they are when input by DATA or DATA10) in order to be sorted.

- G. The visual screen will say:

Loading

while it loads in the list that you asked it to sort. Then it will say:

Sorting

and while it is sorting, a series of numbers will appear one by one across the screen like this:

127 63 31 15 7 3 1

This indicates the records are in the process of being sorted.

H. When the last number appears, the visual screen will say:

```
XXXXXX.DO Sorted
```

(The file name being sorted will appear in place of the X's shown here.) You will then be returned to the Main Menu.

4. Some Rules about Sorting DATA or DATA10 Files

When you input information with DATA or DATA10 that you want to sort, remember:

1. Be consistent with your entries that you wish to sort.
2. Upper- and lowercase letters will be sorted as though they are all uppercase. This characteristic, as explained above, is called "uppercase fold." (However, if you press F1 when you are selecting the field upon which you wish to sort, uppercase letters will be sorted ahead of lowercase ones.)
3. If you are curious about which character comes before which in sorting order, why not take a peek into the section of your manual that gives character code tables. Look in the fourth column, which is labeled "Printed Character."

If you used your DATA or DATA10 program to build a file of single-character records, typing in the characters found in that fourth column, and then sorted the file with SORT or SORT10, the sort order would be the same as what you see in the manual. The sorted file would start with a ! and end with those funny looking graphlike characters.

4. Some sort programs will sort numbers only if they all take up the same number of spaces, i.e., they will sort 00001 and 00010 but not 00001 and 0001. But SORT or SORT10 provides a true numeric sort. It will sort any number into its proper order irrespective of the number of spaces it occupies. (You must of course, as we explained earlier, press F2 for a true numeric sort.)

The TELCOM Program

1. Introduction

Your Model 100 or M-10 also has a built-in program that can open up literally whole new worlds of excitement for you—TELCOM. The purpose of TELCOM is very simple: to enable your Model 100 or M-10 to “talk” to another computer. TELCOM also has an “autodial” feature, so it can automatically dial telephone numbers you have listed in your ADRS.DO file. We have found this automatic dial feature to be completely unsatisfactory for personal, conversational calls, but more than satisfactory for dialing another computer, and we will explain how to use it to its fullest advantage.

Of course the primary purpose of TELCOM is to be able to communicate over the telephone. Your computer can also talk to another computer by means of TELCOM if they are connected through an RS232 cable, but unless both are Model 100s or M-10s, the associated protocol for doing this is impractical. (We will cover communication between two Model 100s or M-10s in Sec. 2 of this chapter. And the DISK or DISK10 program discussed in Chap. 11 offers an easy way to connect your Model 100 or M-10 through its RS232 port with another computer and transfer files extremely rapidly; see Chap. 11, where the method is described.)

The purpose of using TELCOM to talk to another computer is either to view information stored in that other computer’s memory, to download the other computer’s information into your own, or to transmit information or files from your Model 100 or M-10 to the other computer. By means of TELCOM you can access a computer service such as Compuserve or The Source, you can send or receive messages from another computer being operated by another person at the other end of

the telephone line, or you can log on to a mainframe (large) computer in order to use its computing power and functions.

The giant information service boards such as Compuserve are, of course, unattended and answer automatically when you dial them. A computer answering your call will emit a high-pitched sound into your ear, which is its "ready" or "go-ahead" signal. That high-pitched sound is the audio equivalent of a blinking cursor on the screen. In order for your computer to "talk" to that other computer, it too must emit a similar high-pitched sound over the telephone line. When the two computers "recognize" each other's signals, they will be ready to transmit; this is referred to as "going into the terminal mode."

When one computer communicates with another over the telephone by means of TELCOM, it utilizes a device known as a "modem" (for "modulator/demodulator"). A modem is simply a mechanism that enables the computer to transmit over telephone wires by translating its own signals into telephone signals and telephone signals into computer codes.

2. Method of Connecting

The first thing you need to do is to get your Model 100 or M-10 connected to the telephone. You have two options. One is to use a direct-connect modem cable, and the other is to employ an acoustic coupler. The modem cable is nice, because it allows you to connect directly into the phone lines for a better chance of error-free transmission of data. (Sometimes when using acoustic couplers, something is lost in the translation, and thus data can be lost.) But you may need to use an acoustic coupler for telephones that do not have the small jacks or plugs which allow them to be disconnected from the wall. The acoustic coupler has cups that fit over the mouth and ear pieces of your telephone receiver, and it transmits and receives actual sound impulses as opposed to the purely electronic signals modem cables transmit and receive.

We think the Model 100 or M-10 manual gives a very good explanation of connecting your computer to telephone lines. You should refer to that booklet at this time. One thing the manual does not describe, however, is how to make a connection to a multiline telephone, and you might end up believing the acoustic coupler is your only option. However, we have found that there are at least two other options, both available at your Radio Shack store or Computer Center. One is called a "one-line tap" and the other a "multiline controller." The one-line tap allows you to have access only to your primary line, and that can

sometimes be very inconvenient because one's primary line is nearly always in use. But the multiline controller, made by Duofone especially for Radio Shack and sold under the catalog number 43-233, has buttons that allow you to access any of up to five lines on a multiline phone. (If you have a phone with more than five lines, contact your Radio Shack store to see if a tap exists for it also.)

Both these devices have a connector that fits in between the plug and the socket of the cable coming from your telephone. You will have to utilize a small screwdriver in order to separate the two cables where they join. The tap connector fits nicely in between, and is designed to remain there permanently. To connect it, you use only the beige cable of your modem coupler cable. Just let the silver cord hang free (or if you do not plan to use the device on the road, you can simply cut that cord off). Later, when you wish to place your computer in the terminal mode (i.e., to make it emit its own high-pitched sound to signal another computer it is ready to transmit or receive), you will simply press the button on the multiline connector for the line on which you want to transmit.

Now we will discuss various methods of connection in greater detail:

1. Two Computers in the Same Room

To connect two computers that are in the same room, without using telephone lines, you will need an RS232 cable and a null modem adapter. (Some cables have this null modem built in.)

The RS232 cable has a DB25 connector plug at each end, which has become fairly standard on most computers. Although there are 25 pins on the plug, you will usually use fewer than 15. You must also have a terminal program for each computer—TELCOM being an excellent one for the Model 100 or M-10 and other such portable computers.

The main thing you would probably want to do with two computers connected together in this manner is to transfer files back and forth, called "uploading" and "downloading." You can only transfer TEXT files. TEXT (.DO) files are stored and transmitted in ASCII (American Standard Code for Information Interchange). As the name suggests, the code was specially designed for this purpose.

The good thing about connecting two computers in this way is that you can specify the baud rate (transmission speed). You can specify a rate of up to 19,200 baud, or about 2000 characters/second. If you use the internal modem, you are limited to 300 baud.

But except for allowing two Model 100s or M-10s to transfer files to each other, the use of TELCOM to enable two computers in the same room to communicate with each other has been outdated by the advent of the DISK or DISK10 program described in Chap. 11. DISK or

DISK10 allows virtually instantaneous transfer of any files, machine codes, or BASIC or TEXT data, using the Main Menu concept (which requires no protocol).

2. Two Model 100s in the Same Room

If you have two Model 100s or M-10s in the same room, and would like to transfer TEXT files back and forth, follow this procedure:

- A. Connect the two computers with an RS232 cable and a null modem adapter.
- B. Place the cursor on TELCOM and press ENTER. Do this on both computers.
- C. Make sure the "stat parameters" of both computers match. A good set of TELCOM stats are: 97N1E. (See Sec. 3 of this chapter for more on the subject of TELCOM stats.)
- D. When the stats of both computers match, press F4 (terminal). Both will go into terminal mode.

You can then upload and download TEXT files from one computer to the other.

3. Over Phone Lines

If you use telephone lines to connect your M-10 or Model 100 to other computers not in the same room, you will have to use a modem. Fortunately, the Model 100's or M-10's modem is built in.

The Model 100 or M-10 manual describes three ways to connect into telephone lines. The first two involve the direct-connect modem cable (Radio Shack catalog number 26-1410): If you have a telephone that you can unplug (often called a "modular phone"), you can use this cable to connect, or "plug in," easily. And if you have a multiline phone, you can use a tap (see discussion earlier in this section) plus the modem cable to make your connection.

The third method is for use when a modular phone is not available, and utilizes an acoustic coupler (Radio Shack catalog number 26-3805). The acoustic coupler has two cups, one of which fits over the ear piece and the other over the mouth piece of your telephone. It is not as reliable as the direct-connect cable, and should only be used when it is impossible to connect directly into a telephone (for instance, when using hotel-room phones).

Direct-connect cable connection

- A. Plug the round computer connector into the PHONE port located on the back of your Model 100 or M-10. Make sure the switch on the

right-hand side of your Model 100 or M-10 is set to DIR (which stands for "direct connect").

- B. Plug the *beige* cable into the telephone wall outlet. If you have a multiline telephone, you can use a multiline controller to plug into the outlet. (See earlier in this section for more on multiline controllers.)
- C. You can plug the *silver* cable into your phone, and use your phone normally. If you use a long distance service (like MCI or USTEL), you will need to use your telephone touch-tone dialer, because the Model 100 or M-10 uses a pulse-tone dialer. Also you will need to connect this way if you are dialing the second computer manually (one of the options discussed later). If you autodial, use of the touch-tone dialer is optional.

Acoustic coupler connection

- A. Plug the round plug of the acoustic coupler into the PHONE port on the back of your Model 100 or M-10.
- B. After dialing the second computer's telephone number and hearing that computer's high-pitched tone, place the mouth piece and ear piece cups (they are labeled accordingly) over the mouth and ear pieces of your telephone. (Other steps related to the use of TELCOM are interspersed in this procedure, but they are covered in more detail later in this chapter.)
- C. Make sure the switch on the left-hand side of your Model 100 or M-10 is set to ACP (which stands for "acoustic coupler").

3. TELCOM Stats

In order for two computers to communicate, they both have to "talk the same language," so to speak. They must both transmit at the same speed and with the same characters (in this case ASCII), as well as have other conventions in common.

Those conventions are called "communication parameters" (or sometimes "protocol"). You do not really need to know what they mean, but some familiarity with them is helpful in using your computer. So we will now describe the parameter options of TELCOM in relation to the Model 100 or M-10.

The first TELCOM parameter is "baud rate." This simply means the speed at which the computer transmits and receives data. For instance, 300 bauds means 300 bits/second (often abbreviated bps). This is roughly 30 characters/second. When your computer uses its built-in modem, it transmits at 300 baud.

The baud rates available in your Model 100 or M-10 are:

<i>Stat signal</i>	<i>Baud rate, bps</i>
M	300 (automatically enables internal modem)
1	75
2	110
3	300
4	600
5	1,200
6	2,400
7	4,800
8	9,600
9	19,200

Rates other than 300 baud are for the RS232 port only. You will need an external modem to use them since they will disable the internal modem.

The second TELCOM parameter is "word length." This simply means the length of each computer "word" or character. Normally you would use a 7-bit word, because ASCII characters are 7-bit characters.

In order to transmit graph characters, you need an 8-bit word. Some computers will ignore this eighth bit.

The allowable word sizes in TELCOM are:

- 6—6-bit word
- 7—7-bit word
- 8—8-bit word

The third TELCOM parameter is "parity." Parity is a computer's way of ensuring that a character has not been garbled or somehow altered during transmission. Different computers use different types of parity; the only thing you need to know is that two computers must use the same kind in order to communicate properly. The available kinds of parity are:

- E—even parity
- O—odd parity
- I—ignore parity
- N—no parity

The fourth TELCOM parameter is the "stop bit." You can have either 1 or 2 stop bits per character of data sent. As with parity, all you need to know about this parameter is that the stop bit parameters of two computers communicating with each other must match.

The final TELCOM parameter is "line status." What this means is

that the receiving computer must be able to tell the one sending, in effect, "Hold on a second" while it processes the current line, then, "OK go ahead and send the next line" when it is ready to receive more data, and the sending computer must be able to respond to the signals correctly. Otherwise all the data sent might not be received.

These "wait" and "go ahead" signals are often called XON and XOFF. You type them on your keyboard with CTRL S and CTRL Q, respectively.

You can either enable or disable this feature of TELCOM. You will almost always want to enable XON/XOFF. To enable it, type E as the fifth stat parameter.

Now, let us suppose we know all the parameters we need to access a particular computer. Say those parameters are:

- M—modem enable, 300 baud
- 7—7-bit word
- I—ignore parity
- 1—1 stop bit
- E—enable XON/XOFF

Set the TELCOM stats like this:

- A. From the Main Menu go to TELCOM. The current parameters will be listed immediately:

```
M7N1E,10 pps
Telcom:
```

- B. To change any of the parameters, press F3 (stat). The screen will say:

```
M7N1E,10 pps
Telcom: Stat
```

- C. Type in the new parameters and press ENTER. For example, type in M7I1E and press ENTER.
- D. If the machine beeps, you misplaced a character or perhaps typed in a 1 instead of an I.
- E. When you get it right, press F3 and then press ENTER. The new parameters will be displayed again for you to review.

You will notice that the value 10 pps appears on the visual screen. This describes the speed at which the pulse dialer operates in pulses

per second and in effect constitutes a sixth parameter. You will usually leave it set at 10 pps. You do not need to type in this sixth parameter.

4. Dialing and Logging-On Procedures

After you have connected your Model 100 or M-10 to the phone lines by one of the methods just described, you can then dial and log on to another computer, anywhere in the world. There are numerous ways to accomplish this, discussed below. You will have to find the one that is easiest for you.

In this section we will describe how to actually dial and log on; later, in Sec. 5, we will discuss how to communicate once your computer is in the terminal mode.

Autodialing

Before describing manual dialing, we will discuss the autodial feature of TELCOM. Even though, as we stated earlier, we think autodialing is not very helpful for conversational calls, it is definitely useful when you are connecting your own computer into another one, and especially when you are connecting it into computer services such as CompuServe or The Source. And we will discuss it in relation to both kinds of calls.

Conversational calls

Any number you will be having dialed automatically by TELCOM should be stored in the ADRS.DO file. (If you recall, this is the TEXT file that allows access and search by the ADDRSS program discussed back in Chap. 4.)

Any telephone number that is to be dialed by TELCOM must be preceded by and followed by a colon if there are other numbers or information that follow before a carriage return. For example, typical entries would appear as follows:

```
Tom Jones:864-4851:232 Fremont Ave.  
Beaumont, New York 10076◀  
Manuel Garcia:224-351-1000:C 46  
Perla del Sur, Ponce, Puerto Rico◀
```

Notice that we were able to include hyphens in the telephone numbers. TELCOM ignores hyphens when autodialing.

If you wish to use the TELCOM program as an autodialer for your conversational calls, just follow these instructions:

From the Main Menu put the cursor on TELCOM and press ENTER. Immediately you will be shown a screen which looks like this:

```
M7IIE,10 pps
Telcom:
```

```
Find Call Stat Term      Menu
  1    2    3    4      5  6  7    8
```

If you notice that this screen looks surprisingly like ADDRSS and SCHEDL, it is because TELCOM uses a lot of the same routines as the ADDRSS/SCHEDL program. Press F1 (find). The screen will appear as follows:

```
M7IIE,10 pps
Telcom: Find
```

```
Find Call Stat Term      Menu
  1    2    3    4      5  6  7    8
```

After the word "Find" appears following the "Telcom:" prompt, type in the name you wish to search for. You can type in the entire name, the first few characters, just one letter or number, or even nothing. Now press ENTER. The TELCOM program will search and show the first occurrence of the characters you typed. If you typed in nothing, you will be shown the first record in the ADRS.DO file.

Note:

This function is very similar to the F1 (find) function we described in TEXT (Chap. 2) as well as the F1 (find) function that we discussed in regard to SCHEDL and ADDRSS (Chap. 4). The reason is that all these search functions are the same, and your computer is merely using the same routines for different applications.

After you press ENTER, the first occurrence of what you typed in will appear on the screen. If there are more examples present in the file, the message on the visual screen will appear as follows:

```

M7N1E,10 pps
Telcom: Find JO
Tom Jones:864-4851

```

```

      Call More Quit
1    2    3    4    5    6    7    8

```

This, of course, is similar to the message that appears for ADDRSS and SCHEDL and the routine to search for more examples works the same way. But notice that, unlike for ADDRSS and SCHEDL, only one example at a time shows on the screen.

Press F3 (more) to see the next occurrence of what you typed. You can keep pressing F3, and when there are no further instances, the program will take you back to the "Telcom:" prompt. And if at any time you press F4 (quit), you will also be taken back to the "Telcom:" prompt (i.e., back to the point where you first entered TELCOM from the Main Menu).

But let us assume that with the appearance of "Tom Jones" and his telephone number on the screen, you have found the individual you want autodialed. To have this done, when the entry for him is on the screen just press F2 (call), or you can simply press ENTER. The screen will say:

```
Calling Tom Jones:
```

The digits of the number will now begin appearing one by one on the screen after the colon, and you will be able to hear the rhythmic sound of the computer generating each dialing pulse.

Note:

Your Model 100 or M-10 does not generate a tone dial beep like touch-tone phones use. Instead, it creates the same kind of electronic pulse produced by a rotary dial phone. The logic behind the developers of the Model 100 or M-10 in doing this, evidently, was that rotary pulses are acceptable by touch-tone public phone systems, but touch-tone signals cannot be read by rotary phone exchanges. Since there are still some rotary exchanges in the United States, the assumption was probably made that it was best to be totally compatible.

However, pulse dialing means you will not be able to autodial into computer systems requiring a touch-tone signal to input certain numbers after they have been reached. For example, you cannot autodial into MCI or other similar phone services. Of course you can always dial in manually.

Returning to our Tom Jones call, notice the numbers printing out on the screen as the number is being dialed. Observe that even though there is a hyphen in the Tom Jones number, the program ignores it as it dials, and the hyphens are not displayed on the screen.

Assuming you have the phone connected properly to your Model 100 or M-10, as we discussed earlier, the number is actively being dialed as you see the digits print out on the visual screen. For the call to be completed, you have to watch the screen while it pulses, and pick up the receiver at just the right moment as the last digit appears. If you pick up the receiver at any time other than when the last number is being pulsed, the call will not be made—too early and it will not be completed, too late and it will be disconnected.

Therefore, considering the amount of time involved and the degree of user involvement with the process, the autodialing of conversational calls is not very practical (as we said earlier). However, practice doing it a few times and determine if autodialing your conversational calls makes sense for you.

Computer-to-computer calls

Now we turn to autodialing for connecting into another computer. This is practical and useful most of the time, and in fact can be a truly amazing way to log on automatically to a computer service or mainframe or large computer that has a complicated initialization protocol.

When you autodial to another computer, the computer you are contacting will answer by transmitting a signal, the high-pitched sound we referred to earlier. When your computer gets this signal, you must then put it into terminal mode by pressing function key F4 (terminal). We will explain more about this later in Sec. 5 of this chapter, but we mention it now in order to explain other facts and characteristics of autodialing.

After certain numbers you autodial you can also enter other signals to help your Model 100 or M-10 connect with the second computer even more automatically. We will introduce a number of these signals to you, but the first to know is <>. These are simply the “less than” and “greater than” signs on your computer keyboard (SHIFT comma and SHIFT period). If you put them following the telephone number of a computer you are autodialing, your Model 100 or M-10 will automatically go to the terminal mode when the other computer gives its signal.

Many computers such as the “bulletin board” services like CompuServe or The Source are communicative with your Model 100's or

M-10's autolog-on mechanism. With these and other computers, you can insert, as part of the second computer's phone number, rather involved signals that allow your own Model 100 or M-10 to recognize codes from that second computer and in turn allow your Model 100 or M-10 to send letters and characters back in a multiple series to complete the second computer's unique requirements to access its system. This is a true "autolog-on procedure." Those autolog-on signals include:

- = Pause for two seconds.
- ! Regard the following symbol (like = or ?) not as a symbol, but as its real character.
- ? Wait for the character that follows.
- ^ The character that follows is a "control" character.

We will explain each of these symbols in an actual use situation.

Note:

Compuserve is a computer service you can join as a member and pay fees to access. It has many informative "bulletin boards" and other useful data banks where you can read or download information.

(You can find out about joining Compuserve when you buy your modem cable at your Radio Shack store, where you can obtain instructions about doing so. The Source, and other services as well, also require joining. You can find out about the other services through advertisements in the various computer magazines.)

As a Compuserve member, you will be given a local telephone number, an identification number such as 75765,1124, and a password consisting of two unrelated words connected by, perhaps, a plus or a hyphen, such as GRADE + FENCE.

We will describe the log-on sequence for accessing Compuserve in Dallas, the area we know best. In Dallas, you must use a host system known as CPS. First we will demonstrate accessing by autodialing the telephone number only and logging on manually; then we will demonstrate the procedure known as "Autolog-on."

Note:

Before we begin, remember that when using TELCOM you may need to use SHIFT/BREAK periodically, which takes you back to the "Telcom:" prompt from any other place in the program. This is accomplished by holding down the SHIFT key and pressing down firmly on the PAUSE/BREAK key. It is often useful if you change your mind about something, or, for example, if you initiate a call and your phone was not connected properly.

Autodial, but manual log-on

- A. First, enter the local phone number for CompuServe in ADRS.DO. In Dallas that would be:

CompuServe:681-4560<>

- B. From the Main Menu place the cursor on TELCOM and press ENTER. When the "Telcom:" prompt appears, press F1 (find). The screen will say:

Find

- C. Type in CompuServe or maybe just Com and press ENTER. The screen will say:

CompuServe:681-4560<>

- D. Press ENTER or F3 (call). The screen will say:

Calling CompuServe

and the digits will appear printed sequentially across the screen as the number is pulse-dialed by your Model 100 or M-10.

- E. After a pause, the labels at the bottom of the screen will change to:

Prev	Up	Down	Full				Bye
1	2	3	4	5	6	7	8

- F. You will now be in terminal mode. You must add a carriage return by pressing ENTER (or in some areas of the country by entering a control C). The screen will say:

114 DAL
Host name:

- G. Type in CPS (the host name in Dallas—in your area it may be different).
H. The screen will then say:

User ID:

Type in 75765,1124 (or your own identification number).

I. Press ENTER. The screen will say:

Password:

Type in GRADE + FENCE (or your own password) and press ENTER.

Note:

When the screen says "Password:" press F4 first and the label will change to "Half." This stands for "half duplex," while "Full" stands for "full duplex." "Duplex" is explained later, in Sec. 5 on the terminal mode; for now we note that half duplex lets you see the password you are typing, but full duplex prevents its appearance on the screen. Type in your password, press ENTER, and then press F4 again to put you back to full duplex.

J. After a moment the screen will say:

```
Welcome to CompuServe Information Service
16:23 EST Monday 23-Mar-84
```

You are on! CompuServe has limitless variations we will not go into here. You can follow the screen prompts to perform the functions you require.

- K. At this point you can press F5 and the label "Echo" will appear. This is explained further in Sec. 5 below. But when F5 is pressed, it causes everything transmitted from the host or second computer to appear not only on your Model 100 or M-10 screen, but on your printer as well, as it is being transmitted. Thus you can be provided with hard copy of everything you are viewing on the screen, should you want it.

Autolog-on

An explanation of all the following symbols is given below, so do not panic when you first see them.

- A. Type into your ADRS.DO file:

```
CompuServe Log:7610599<==`M`C?HCPS`M?U75765,1124`M?PGRADE+FENCE`M>
```

- B. From the Main Menu go to TELCOM. Press F1 (find). Type in just Log or CompuServe Log and press ENTER.
- C. The screen will not show the entire entry as above, but instead

```
CompuServe Log:<>
```

- D. Press F2 (call) or just press ENTER.

E. The screen will say:

```
Calling Compuserve Log
```

and the telephone number will begin to appear on the screen.

F. As the computers connect, you will see the labels change at the bottom of the screen to

```
Prev Up Down Full          Bye
  1   2   3   4     5     6   7   8
```

Then each prompt as shown in the manual sequence above will appear and be filled in automatically.

G. Next the screen will show:

```
Welcome to Compuserve Information Service
17:45 EST Monday                23-Mar-84
```

and you will be on.

Here is the explanation of the autolog-on series entry in the ADRS.DO file shown above:

Compuserve Log This is simply the name that you type in to help you remember what to search for later, when you are keying in characters at the "Find" prompt after you press F1. You can use any name that will help you remember you are dealing with Compuserve, but the service's own name is probably best for that purpose.

: This signals the start of the number being autodialed.

7610599 This is your local computer access telephone number. You can put in the hyphen if you like.

< This switches the Model 100 or M-10 to terminal mode automatically when another computer transmits the proper signal. Since a > does not immediately follow, the M-100 or M-10 knows an autolog-on sequence is about to start.

= = Each = means "pause 2 seconds." The reason for pausing is that once you connect, it is a good practice to pause a little before sending the second computer signals so it will have enough time to get ready. Experiment with pause lengths. Their use can make a real difference in whether you make a connection or not.

^M This is the same as pressing ENTER. Again, it is something to

experiment with. Sometimes it is necessary to press ENTER several times to get host computers to acknowledge.

^C In some areas Compuserve requires a CTRL C to be sent at the beginning of log-on. CTRL C is sent by typing in a caret (SHIFT 6) C in your autolog-on sequence. This is yet another experimental tool, sometimes needed, sometimes not, but it will generally get the second computer's attention. It is like sending a BREAK command.

? This signals the Model 100 or M-10 to wait to receive the next character in the sequence before transmitting more of the autolog-on sequence.

H The next character the Model 100 or M-10 is waiting for. When the Compuserve computer sends the "Host name:" prompt, the Model 100 or M-10 waits for that H, and only then sends the next characters.

CPS The "host name" which answers the "Host name:" prompt.

^M This is also the same as pressing ENTER.

? This tells the Model 100 or M-10 to wait to receive the next character in the sequence before transmitting anything else.

U The next character the Model 100 or M-10 is waiting for. When the "User ID:" prompt appears, it then sends your user identification number.

75765,1124 Your user identification number.

^M This is the same as pressing ENTER.

? This signals the Model 100 or M-10 to wait for the character which follows to come from the host computer.

P This is the character it is waiting for. When the host computer sends the "Password:" prompt, the M-100 or M-10 sees the P and it then sends your password.

GRADE + FENCE The password.

^M This is the same as pressing ENTER.

> This signals the end of the autolog-on sequence.

Note:

1. The sequence above did not illustrate how to use the symbol !. As we said earlier, this tells the Model 100 or M-10 to send, or regard the symbol that follows (which might be the >, the =, the ?, the ^, or even another !), as a real character to be printed instead of one of the autolog-on symbols. For example, if your password had been GRADE=FENCE, you would have typed it in as GRADE!=FENCE so the = would be considered a character in its own right.
2. Be careful to honor upper- and lowercase when you are typing in the autolog-on sequence. The Model 100 or M-10 will look for or send exactly what

you put in, and host computers will often only accept what they are programmed to recognize as the correct case. So be careful how you type in the sequence—it must match not just correct spelling and numbers but upper- and lowercase as well.

Autodialing without accessing the ADRS.DO file

Sometimes you may want the computer to dial a number that you do not have in your ADRS.DO file.

- A. From the Main Menu put the cursor on TELCOM and press ENTER.
- B. The screen will show:

```
M7I1E,10 pps
Telcom:
```

- C. Press F3 (call). The screen will say:

```
Telcom: Call
```

- D. Type in the number you wish dialed. Put <> after it if you want your Model 100 or M-10 to go into terminal mode automatically.
- E. Press ENTER. The screen will say:

```
Calling
```

And the numbers you typed in will appear one by one on the screen as the telephone is automatically pulse-dialed.

Manual Dialing

There are two reasons why you might want to manually dial to access another computer: First, sometimes autodialing just will not give you a connection. Occasionally a host computer will not respond properly, and you need to insert more carriage returns to connect. Often the problem simply remains a mystery; computers are very particular. You can experiment with your autolog-on sequence or just keep trying the sequence until it works, but manual dialing has saved the day for us on several occasions.

The second reason you might want to dial manually is if you are using acoustic couplers. If the Model 100 or M-10 generated touch-tone signals, it could use acoustic couplers and still do autodialing; but it generates pulse-tone signals. Therefore, you must manually make the audible connection with the host computer and then connect the couplers.

Here is how to dial manually:

Manual dialing with direct-connect modem

- A. Make sure the switch on the right-hand side of your Model 100 or M-10 is set to DIR (for "direct") and that the modem cable is connected properly to the telephone.
- B. From the Main Menu put the cursor on TELCOM and press ENTER. The screen will say:

```
M7N1E,10 pps
Telcom:
```

- C. If you are using a multiline phone with a tap, press F4. The screen will say:

```
Telcom: Term
```

If you are using a single-line phone connected with the silver cable, wait to press F4 until instructed to do so in step D.

- D. Pick up the receiver and dial the other computer's phone number. When you hear the other computer's high-pitched tone, if you are using a multiline phone, simply hang up. If you are using a single-line phone connected through the modem cable silver cord, however, press F4 (terminal) after you hear the tone, and then hang up.
- E. Your Model 100 or M-10 will go immediately into terminal mode, often before you hang up. The labels will change to

```
Prev Down Up Half      Bye
  1   2   3   4       5   6   7   8
```

and the other computer will send its first characters. (If you have a multiline phone, you could listen as your Model 100 or M-10 goes into terminal mode. If you did, you would hear its own high-pitched sound blending with the one generated by the other computer.)

- F. Your computer is now in terminal mode, ready to communicate with or transmit to the second computer.

Manual dialing with acoustic couplers

- A. Change the switch setting on the left-hand side of your Model 100 or M-10 to ACP, which stands for "acoustic coupler."
- B. Connect the round plug of the acoustic coupler into the receptacle marked PHONE on the back of your Model 100 or M-10.

- C. From the Main Menu, put the cursor on TELCOM and press ENTER.
- D. The screen will say:

```
M7N1E,10 pps
Telcom:
```

- E. Press F4 (terminal).
- F. Pick up the receiver of your telephone and dial the second computer. When you hear the other computer's high-pitched sound, simply slip the cups marked, respectively, for ear piece and mouth piece over the appropriate parts of the telephone receiver.
- G. Your Model 100 or M-10 will automatically go into terminal mode, and the labels on the screen will change to:

```
Prev Down Up Half      Bye
  1    2  3  4      5  6  7    8
```

- H. You will receive the first character from the other computer, and be ready to type and transmit or transfer files as explained earlier in this chapter.

5. Terminal Mode

Once you have connected your computer to another one and logged on (by whatever means), you are in "terminal mode." This means that the other computer considers your Model 100 or M-10 as a terminal. No matter where that second computer is located, yours will be able to communicate with it. Everything you type into yours will go to the other computer, and everything the other computer sends will appear on your Model 100's or M-10's screen. If you know the right signals to use, you can get the other computer to do all kinds of things for you like edit or run programs in various languages such as Pascal, C, Fortran, or whatever other languages the other computer supports.

Therefore, the capabilities of a large mainframe computer are at your disposal if you are connected into it. You will need an account (usually), and must know all the correct statements and syntax to use it. But your Model 100 or M-10 has become, in effect, an extension of the host computer, as if you were in the same room.

Mainframe computers are all over the country. Most colleges and universities have them, as do large companies, public school systems, government agencies, banks, airlines, hospitals, police departments, etc. Most have some sort of timesharing facility. This means that sev-

eral users (up to 100 or more) can be using the computer at the same time.

All such users are on some sort of “network.” You dial into the network to gain access to the computer. Timesharing and networking are very complex subjects—certainly beyond the scope of this guide. Suffice it to say that your Model 100 or M-10 can serve as a fully functional, feature-rich terminal for accessing larger computer networks.

TELCOM can be very exciting. By the simple use of a telephone, you can access mainframes and other smaller computers, thus expanding your computing capabilities. “Bulletin board” and information services like Compuserve can be quite fun to use. There are thousands of other users out there you can electronically “talk” to. They have data bases with programs, advice, products reviews, ads, games, etc., which you can read or use. Telecommunications promises to become increasingly popular as the computer field grows.

Explanation of Label Keys in Terminal Mode

When your Model 100 or M-10 goes into terminal mode, the label keys change to

Prev	Down	Up	Half				Bye
1	2	3	4	5	6	7	8

We briefly discussed the “Half” label when we talked about signing on to Compuserve, but now we give a more detailed explanation of these functions or features of TELCOM.

TELCOM uses function keys to control the various options it offers. Here are short, simple descriptions of each of those keys:

F1 (previous) The reason for this key is that sometimes data is coming in so fast the operator (you) cannot read it quickly enough. Pressing this key allows you to temporarily stop that flow. Pressing F1 once makes the screen “page up” in a sense, so you can review the previous seven lines you have just received. Pressing F1 again “pages the screen down,” and allows the flow of data to resume.

F2 (down) and F3 (up) These are described below in the section titled “Uploading and downloading files in terminal mode.”

F4 (half/full) This key allows you to switch between half duplex and full duplex. “Half duplex” means every character you send to another computer is “echoed” back to you and then displayed on your Model 100 or M-10 screen. This is a very helpful feature since you can

then make sure the character sent was the correct one. "Full duplex" means that your Model 100 or M-10 will display characters on its own visual screen whether the second computer echoes them back or not. Some computers will not echo characters back, so you need this feature. However, be aware that if you are in full duplex and the other computer is echoing back the data, you can end up with something like this on your screen:

```
DDAATTAA BBEEIINNGG SSEENNTT TTHHRROOUUGGHH TTEELLCCOOMM
```

If this happens, press F4 to go to half duplex.

F5 (echo) This key allows you to echo everything you send and receive through TELCOM to your printer. If you press F5, your computer's screen will say:

```
Prev Down Up Half Echo      Bye
  1    2   3   4    5    6    7    8
```

And everything that appears on the screen will also be printed by your printer. Pressing F5 again cancels this feature. F5 is handy if data is coming in really quickly, or if you must leave the room and do not want to miss anything. (Downloading in such cases is also handy—see the discussion of it below.)

Sometimes when you activate this feature your Model 100 or M-10 will appear to be "hung-up" and not doing anything. Actually, it is waiting for you to connect (or select) your printer. You could then press SHIFT/BREAK to abort the echo, if you pressed F5 accidentally and your printer was not connected.

F6 (wait) If the other computer sends a CTRL S character, which is a signal for your Model 100 or M-10 to wait, "Wait" will appear on the screen above F6. This means that the other computer is doing something else, and wants yours to wait until it is through doing it. SHIFT/BREAK will sometimes cure this situation. If the other computer is sending a stream of these CTRL S characters, you will just have to wait until it is ready to transmit data again.

F8 (bye) Since SHIFT/BREAK actually sends the break signal to the other computer, pressing it will not affect the operation of your Model 100 or M-10 if you are in terminal mode. To break a connection in TELCOM, you must press F8 (bye). The screen will say,

```
Disconnect?
```

If you wish to disconnect, type in Y and press ENTER. The "Telcom:" prompt will appear, and you can go to the Main Menu by pressing F8

again. Pressing any other key and pressing ENTER, or just pressing ENTER alone, will abort the disconnect procedure.

You should always log off from the other computer before disconnecting. Log-off procedures vary widely with computers, but a common sequence is to type LOGOFF, or just OFF.

Uploading and Downloading Files in Terminal Mode

Once you are in terminal mode, as described earlier, you can transfer files back and forth with the other computer by means of the uploading and downloading features of TELCOM. Uploading is when you transfer a file from the memory of your Model 100 or M-10 over the phone lines to another computer. Downloading is when you take data coming in over the phone lines from another computer and save it in the memory of your own for use later. Both are easy to do.

To download a file, first make sure you have enough free RAM for the file you want to save. TELCOM will stop downloading when memory runs out. Then, from terminal mode, press F2 (down). You will get the prompt:

File to download?

Simply type in the name you would like to give your file (six letters or fewer, as always). If you type in a name that is already in use, TELCOM will destroy the old file and start a new one, so make sure to type in a new name. When you press ENTER, the word "Down" will be highlighted on the TELCOM screen. This means that all the data which comes in over the phone lines will be saved in your computer's memory. You can then review, edit, or print this file as you would any other, after you have disconnected from TELCOM.

To stop downloading, press F2 again. "Down" will then assume its normal (unhighlighted) appearance on the screen.

Important note:

If you run out of memory while downloading, the words

Download aborted

will appear momentarily, and the downloading will stop.

Uploading is easy too. You must have created a file in TEXT previously. Make a note of the file name, as you will not be able to see the

Menu from TELCOM. Then, from terminal mode, press F3 (up). The screen will say:

File to Upload?

Type in the name of the file you wish to send and press ENTER. If the file is not present in your RAM, the screen will say:

No file
Upload aborted

Simply retype the name in, making certain you have it spelled correctly, and press ENTER again. (The .DO extension is not needed; it is understood. TEXT files are the only kind of files you can send through TELCOM.) When you get the name right, the screen will say:

Width:

If you just press ENTER, the file will be sent without any carriage returns in it. But you may specify a width of up to 132 characters before pressing ENTER, and the file will be sent with a carriage return inserted after however many characters you have specified. Since some computers can receive only limited line lengths, this feature allows you to limit the length of each line you send. When you press ENTER, either after specifying a line length or not, the file will be uploaded over the phone lines. The word "Up" will be highlighted on the screen as the uploading proceeds; when it is finished, the word will return to its normal (unhighlighted) state. The file being sent will not be displayed on your Model 100 or M-10 screen.

While we are on the subject of line length, here is a word about carriage returns and line feeds. There are actually specific ASCII control codes for carriage returns (CRs) and line feeds (LFs)—which are, respectively, 013 and 010. Some computers always put a CR and an LF together, as a CRLF pair. But the Model 100 or M-10 strips out all LF characters before they are sent, and just sends CR characters. What do you do about computers that will not allow you to send a line without an LF? In order to solve this problem, you can go into the TEXT file and insert LF characters manually. Instead of just pressing ENTER at the end of a line, type CTRL P CTRL J and then press ENTER. These embedded ^J characters are LF characters (line feeds). This fools TELCOM, so you can unload a file with line feeds inserted. There are also programs you can use which alter this LF stripping mechanism in your Model 100 or M-10.

Note:

We said before that TEXT files are the only kind of files you can send with TELCOM. While this is true, you *can* send a BASIC file, if you first *save* the BASIC file in ASCII format. See your Model 100 or M-10 manual for more on this subject. But the DISK or DISK10 program, described in Chap. 11, makes this method for transferring BASIC files obsolete. DISK or DISK10 is far superior to TELCOM for transferring files.

6. Conclusion

TELCOM is a very fine feature of your Model 100 or M-10. It allows you to access other computers everywhere in such a way that your Model 100 or M-10 can act as a legitimate, full-functioning terminal of those other computers.

Cultivate the use of TELCOM, and by means of it tap into the hundreds of computer services and data banks all over the country.

The subject of telephone data transfer and computer-to-computer communications is fascinating. We have covered the material very well from a user standpoint. But it has far more facets and facts related to it than we were able to touch on here. Perhaps your experience with TELCOM will spark in you a desire to study the topic in more detail.

The TELEX + Program

1. Explanation of Features

TELEX + lets you send any text file you have created to any telex machine in the world or send an Email (which stands for “electronic mailgram”) through the ECOM system of the U.S. Postal Service to any U.S. mailing address.

With the Model 100 or M-10 and TELEX +, you can access directly the Action Telex computers, which are located in 14 major cities in the United States and accessible throughout most of the country via toll-free numbers.

Note:

A complete listing of Action Telex offices and their phone numbers will be sent to you after you apply for the service. Also included with the purchase of the program is a certificate for a free Action Telex trial. You can send three free telexes to any telex number in the country or three free Emails to any mailing address in the United States.

Action Telex will send you a temporary trial code along with an application blank and literature. As soon as you receive your code you can send your free messages. The application will tell you about registration fees, and you can find out about your local rates from the Action Telex office nearest you (here in Dallas it is about \$0.50 per minute for transmission in the continental United States). Email provides the same service as a Western Union mailgram, for about half the price.

Note:

TELEX + was designed specifically to work with the Action Telex Store and Forward system. However, a new program is now available, called LINK, which might be referred to as “TELEX + +.” LINK works similarly to the way TELEX + is described as working in this chapter, but it allows the user to

access his choice of up to six services, including Western Union's EZY LINK, RCA'S DDD, GRAPHNET, MCI Mail and others such as AGRINET. Action Telex also has a service called "Priority," which is a domestic 800-number access that the new LINK program facilitates, perhaps much better than the TELEX+ program. At this time LINK is available only through PCSG, but may be sold in Radio Shack stores and through Olivetti dealers in the near future.

LINK works under the principle of having user-accessible "They say—We say" input sections, so any protocol need be typed in only one time by the user and letters and telexes can then be sent just by typing in the file name and destination and pressing ENTER on all subsequent occasions. LINK does not operate more simply than TELEX+, but it does enable users to send telexes by their choice of services. Even if you will be using LINK to access one of the other services, study this chapter because the operations of the programs are very similar.

Sending a telex or Email is very simple with TELEX+. First, you connect your Model 100 or M-10 to a telephone using the modem hookup described in Chap. 7. Then from the Main Menu you put the cursor on TELEX+ and press ENTER. All the files there will be displayed and the visual screen will ask:

Which document to send?

After you type in the name of the file you want and press ENTER, you will be given the option of a printed copy and will be asked:

E>mail or T>elex or O>ther?

("O>ther" is for multiple telexes, multiple Emails, the new Priority service, or for accessing services other than Action Telex.)

If you press T, the screen will next ask you to type in the number of the machine you are telexing or just press ENTER to send to your most frequent telex number. Then, after you have indicated the number and pressed ENTER, the program will automatically call your local Action Telex computer and send your message, complete with all the various codes, headings, and computer sign on and sign off signals.

If your printer is connected, you will get a hard copy reproducing exactly the message the telex recipient is receiving. If your printer is not connected, the telex will still scroll past on your computer's visual screen. (One point—be aware that the program always transmits according to the correct telex line length and in uppercase, no matter whether you insert carriage returns or not or type your message lowercase.)

After completion the screen will say:

Telex sent

or

Email sent

and the file on the Main Menu will have the last letter of its name changed to an X, to mark it as having been sent.

Email is just as simple: all you do is enter the name and address of the recipient when prompted.

TELEX+ truly brings you into the world of electronic communication. Rapid access to others in the business world is here with TELEX+ and your Model 100 or M-10. Once you start sending your telexes and Email, you will become as dependent on these services as you are on your telephone now.

2. Loading

- A. Place the cassette labeled TELEX+ into your cassette player. Make sure the player and computer are connected properly.
- B. Rewind the tape completely. It may be rewound already, but make certain. Press PLAY into its locked position.
- C. There are three items that must be loaded into your Model 100 or M-10 in order to run the TELEX+ program. They are easy to load. One is a BASIC file called TELEX+.BA. The other two are text or document files called T+SPEC and ECSPEC.
- D. With the cassette player set to operate as described, turn on your computer. The Main Menu will display. With the cursor on BASIC, press ENTER. You will immediately enter BASIC and the screen will say,

Ok

- E. Press F2 and the screen will say,

Load "

You merely type in CAS:TELEX+ and press ENTER. Automatically the cassette will start running, and while it is doing so the screen will say:

Found: TELEX+

- F. When the cassette stops, the screen will say

Ok

Then press F3, and the screen will say:

Save "

Then type in TELEX + and press ENTER. The screen will say

Ok

Press F8 to return to the Main Menu.

- G. Do not change any settings on the cassette player. From the Main Menu put the cursor on TEXT and press ENTER. The screen will say:

File to edit?

Type in T+SPEC and press ENTER.

- H. Push F2, and the screen will say:

Load from:

Type in T+SPEC and press ENTER. Automatically the cassette will start running, and while it is doing so the screen will say:

Found:T+SPEC

- I. When the cassette shuts off, the screen will fill with the specification listing that we discuss later.
- J. Do not type in anything on this screen—it is used by your TELEX + program to create your telexes and Email messages. We will explain how to use it below. Instead, press F8, which will return you to the Main Menu.
- K. Do not change any settings on the cassette player. From the Main Menu put the cursor on TEXT and press ENTER. The screen will say

File to edit?

Type in ECSPEC and press ENTER.

spec be maintained for the program to work. If, while you are entering your codes and numbers, you upset any of it, review this page and restore the positioning. Or, of course, you can always reload from the cassette.

- C. Delete the X's on the first line and insert your code. Next, put in the telephone number of your local Action Telex computer. (You will receive this information when you call for your code.)

Note:

Entering your local Action Telex computer number: Some users will be accessing their Action Telex computer from cities or locations outside the immediate telephoning area of that Action Telex office. Those persons will be given a toll-free number. If the toll-free number is an 800 number, simply type in 1-800 and then the number. However, sometimes users are given an MCI or other long-distance calling service toll-free number that reads like this:

9881010 wait for tone 418111.

Handle it this way: Type in one digit, such as 1 on the T + SPEC for the local Action Telex number, then dial the number yourself. (But do not actually dial until you are ready to press ENTER (see step K, below.) Press ENTER when you hear the computer tone on the phone and hang up. This procedure is necessary because these calling services require touch-tone dialing rather than the pulse dials generated by the Model 100 or M-10.

- D. Later when you sign on and get your answer back number and your permanent personal code, you can enter them in the same way.
- E. If you have a telex number you will be calling often (perhaps your home office), you should enter that number on line 3.
- F. Hook up your computer with your telephone using the direct-connect modem cable if your phone has a modular phone jack. (Hooking up the modem cable is explained in your Model 100 or M-10 manual.) If you have a multibutton-type phone (such as is found in many offices), you may not have a modular phone jack. In that case, you need to pick up a one-line tap from your Radio Shack Computer Center or store. With the one-line tap comes a set of instructions for use. You will only need the beige cable of the modem cable for this connection. Just let the silver cable hang free.
- G. Now you are ready to send your telexes or Email. Go to the Main Menu, place the cursor on TELEX + , and press ENTER.

H. The screen will display the files and say:

Name of document to send?

I. Type in the name of the file you are sending and press ENTER.

J. The screen will say:

Is printer connected?

If it is not, type in N. If it is, type in Y.

K. The screen will immediately say:

E>mail or T>elex or O>ther

Note:

E>mail means an electronic mailgram sent through the ECOM system of the post office. It arrives in the next day's mail in an official ECOM envelope. Email is for domestic mail only. If you want to send your message by Email, type in E. The screen will say:

One moment.

while it loads up the Email address screen. Next you will be prompted as to destination; move from field to field with the up and down arrows and ENTER key, filling in the information in the spaces marked by reverse video:

```

                                ECOM destination
Name: ████████████████████████████████████████
Company:
Address:
Address:
City:           St:           Zip:
```

When you have completed the last entry, press function key F3 to transmit. The telex computer will be dialed automatically.

T>exlex can send the text file you choose to any telex machine in the world. The Action Telex computer connects automatically to the telex machine and sends it within minutes. If you want to send any text telex, type in T and press ENTER. The telex computer will be dialed automatically. The screen will ask:

Destination? (ENTER for XXXXXX)

where the X's above stand for the number you might have already filled in for your most frequent telex recipient. Press ENTER if you are sending to that recipient. If you are not, type in the number of the machine you are telexing and press ENTER.

O>ther is for special telexes or Email: (1) for Email outside the continental United States; (2) for multiple telexes (same copy to many addresses), both domestic and foreign; and (3) for multiple Email (same copy to many addresses), both domestic and foreign. We will discuss in Sec. 4 how to handle each of these special cases. (4) It is also for the new Action Telex Priority service or other services than Action Telex. If you have met the special requirements for any of them, simply press O.

- L. No matter how you want to send your data, the Action Telex computer telephone number will be called automatically, and you will see the numbers displayed across your visual screen as the call is made.

Note:

Occasionally you may wish to use the acoustic couplers instead of the direct-connect line. You may, for example, need to send a telex from a telephone booth or perhaps from a hotel room where using a direct-connect line is impossible because the room's phone is not modular. To do this, just follow these procedures: (1) On the left-hand side of your computer move the switch from DIR (which stands for "direct-connect line") to ACP (which stands for "acoustic coupler"). (2) Access your T+SPEC file and type in a single digit for your local Action Telex number—for example, the numeral 1. (3) When you are ready to send your telex, simply dial the Action Telex computer number manually. You will hear a computer tone. Connect your acoustic cups and follow the procedure for sending a telex or Email as though the number were going to be dialed automatically.

- M. As the connection is made with the Action Telex computer, you will see its feed-back letters, or at least part of them, appear on your screen. (ACTDUR is the feed-back code. You may get all of it, or only two or three letters.) Do *not* pick up the receiver of your phone to check that the connection has been made, especially when using the one-line tap. If you do so, it will destroy the communication. And do not expect the phone light to come on even when the connection has been made. Instead, watch the screen for the feed-back letters.
- N. You do not have to do anything more; after the feedback letters appear, your message will start transmitting. If you answered Y when asked if your printer was connected, your message will print out on your printer exactly as transmitted. If you answered N, your message will scroll across the screen exactly as transmitted.

O. When the transmission is complete, the screen will say:

Telex sent and file changed to AAAAX

or

Email sent and file changed to AAAAX

In other words, the last letter of the name of the file you sent will be changed to an X to remind you that this file has been transmitted.

Some interesting aspects about the TELEX+ program are these:

1. You can send any text file no matter how it is typed, upper- or lowercase.
2. When TELEX+ sends the file and it prints on your printer, it will be all uppercase to meet the telex requirements.
3. The telex computer requires a special line feed control character every 65 characters in order for data to be accepted at its end. The TELEX+ program automatically puts this into your text so that it can be received by the telex computer.
4. When you see your printed copy, you will notice that both telex and Email, while different, require a complex code at the beginning and a certain series of sign-off messages at the end, all of which are automatically added to your text by TELEX+.
5. When you open the file again after it has been sent and its name changed, you will find it exactly the way you typed it. It will be in lowercase if that is how you entered it, and there will be no control feed characters or sign-on, sign-off codings.

4. Special Telexes and Special Email

For certain special telexes and special Email—for example, sending the same message to multiple addresses—there are both special opening codes and special closing codes. You will have to put those codes into any text file you send in those special ways. However, each special situation is different, so we will give you an example of how to do each one. Remember, the “O>ther” prompt involved in this kind of sending indicates that the TELEX+ program will send the text file you specify exactly as it is entered in the file. But if you do not format it as shown in the examples below, it will not be transmitted correctly. (Although

we do not give examples, the O>ther prompt is also used for sending by the new Action Telex Priority service and other services. Just put their special opening and closing codes into the text file you are sending.)

Actiongrams to Europe: The Alternative to an Expensive International Cable

If you need to send a message to a company in the United Kingdom or Europe and they do not have a telex machine—send an Actiongram!

Example of format

```
ZREF AGM
XXX +
NAME
ADDRESS
TEXT TEXT TEXT
TEXT TEXT TEXT
REGARDS
JOHN DOE
NNNN
. . . . .
```

The X's above mark the location where you should insert your personal three-letter code.

Note:

Service is available to all of the United Kingdom, western Europe, Australia, New Zealand, South Africa, Hong Kong, and Columbia in South America. It is inexpensive, costing less than a telegram. Delivery is via Action Telex correspondents and foreign mail service—usually “next day” delivery. There are special prices for multiple messages, and messages can even be sent “Reply Prepaid.” Details are available from your nearest Action Telex office.

Sending an Electronic Mail Letter to Multiple Addresses

Electronic mail letters are delivered domestically via the U.S. mails. Your message is electronically transmitted to the nearest designated U.S. post office and then automatically folded and placed in an official ECOM envelope for delivery with the first morning mail.

Example of format

```
ZREF ECM
XXX +
ZCZC JAN 23 83
ZIP
JOHN SMITH
127 MAIN ST
SINGLE HORSETOWN TX 77777
BT
```

TEXT TEXT TEXT
 TEXT TEXT TEXT
 REGARDS
 JOHN DOE
 NNNN
 ZCZC JAN 23 83
 ZIP
 JACK BROWN
 ADDRESS
 ZCZC JAN 23 83
 ZIP
 MIKE JOHNS
 ADDRESS
 NNNN END

The ZCZC code must be used before each date, the zip code must go above each name and address, and BT must always precede the text of the message. The three X's at the beginning mark the location where you should insert your personal three-letter code.

For current rates, check with your post office.

Abbreviations and unacceptable formats

Certain characters cannot be used on international telex:

<i>Do not use</i>	<i>Use instead</i>
@	AT
#	NBR or NO
\$	USD or US
%	PCT
&	AND
*	INVALID
!	INVALID
"	Two apostrophes: ' '
=	EQUALS or EQ.

Sending the Same Message Text to More than One Telex Number

Example of format

/85183147.XXX+ (ATTN: SIR OLIVIER)
 /84126242.XXX+ (ATTN: M. DIETRICH)
 /85423214.XXX+ (ATTN: BJORN BORG)
 /84239694.XXX+ (ATTN: MADAME B. BARDOT)
 /07933312.XXX+ (ATTN: J. CARSON-BURBANK DEPT)
 BT
 CONGRATULATIONS ON RECEIVING AWARD.
 REGARDS,
 OSCAR
 REPLY VIA RCA
 293---- ---- UR
 NNNN

Again, the X's above mark the location where you should insert your personal three-letter code. Remember, always put a slash before the numbers, as shown, and BT before the message's text.

Note:

The above message is designed to be delivered to five different people. Its text will be the same for everyone, except that the name on the first line in parentheses will change. You can have a maximum of 200 characters between the parentheses.

Note:

For multiple address telexes you can have two transmissions, one for the message followed by one for the addresses. You can use DATA or DATA10 to assemble the addresses. Send both the text and the addresses using the "O>ther" prompt. The top of your multiple-address transmission should say:

ATTN: ACTION TELEX these addresses are for memo sent prior to this transmission.

Go to the address file before sending and type that message at its beginning.

Action Telex Trial Offer

By special arrangement with the Action Telex Corporation, with the purchase of your TELEX + program, as part of the program package, you are entitled to three free domestic telex transmissions or three free domestic Action Telex Email messages, using your Model 100 or M-10. These are the following restrictions:

1. You must call the office of Action Telex for your special temporary identification code. But your right to the number comes with buying the program.
2. You are entitled to only one trial offer with each program package.
3. Trial transmissions are limited to 200 words or fewer each.
4. You must complete the trial within 30 days after receipt of your TELEX + program.

The EXPNS Program

1. Introduction

Another program available that makes the Model 100 or M-10 a more versatile tool for the businessperson, is the expense report generating program called EXPNS. Since the name is shorthand for “expense,” it sounds like it might be just for keeping records on expense accounts, but it is designed to be used for any sort of financial planning function that a businessperson must go through in his or her normal work sequence. It can also be used by managers to quickly report from raw financial data what has been accomplished in their departments or on their projects. They will be able to prepare budgets and even do simple financial reporting.

Of course the most popular application for this program *will* be the tabulating and printing of expense account reports. Executives can carry their Model 100s or M-10s with them and simply enter any expenses they incur whenever it is convenient to do so. The computer will keep an ongoing compilation for the week, organizing the expenses entered in up to 18 categories (rows) as well as displaying them for each day for an 18-day period (columns) when the data is needed. It will also maintain in the week’s expense file the totals for each category and day. In the final report, the overall total for everything will be shown, as well as the broken-down subtotals for each day and each category.

The program works by using a file reserved for the headings you wish to have compiled. When you receive your program and load it from cassette into your machine, it will have one heading’s file titled ETRAV (short for “travel expenses”), as well as others. If you call that file up onto your visual screen, you will notice that it lists 18 categories and 18 days for a typical expense account. You can change “days” to

any time period you want, and you can name the categories anything you want. The only restriction is that you are limited to from 1 to 10 letters for names as designations for your time periods (columns) and categories (rows).

To use the expense account program, you first access the E file, and type in the facts for the titles that you want to appear for this report. Such as:

```
TRAVEL EXPENSE REPORT◀
FOR:◀
PERIOD BEGINNING:◀
PERIOD ENDING:◀
PURPOSE:◀
CITIES:◀
```

You can keep a standard group of titles (or prompts) like those we suggest, or you can make up your own and change them whenever necessary. You can have up to nine lines for these titles if you like. By pressing a function key while doing the program, you can display them on your computer's screen to check whether you are entering your data into the correct report or not.

Next, access the EXPNS file. Note that this is a BASIC file. When it comes up on the screen, it will list all the names of the files in the computer's menu and give the prompt:

```
Enter E file name
```

This is because you can have as many E (headings) files as you need for other types of reports you want to generate. After you type in the correct E file name and press ENTER, the screen will show you the time periods already entered (for example, MONDAY, TUESDAY, etc.) and at its bottom say:

```
Select or change
```

At this time you can change the ones shown (or enter new ones if there are not yet 18). (Remember, if you are creating a brand new E file, for which no time periods or categories have yet been entered, none will show on the screen until you type them in.) However, to select one, you simply place the cursor on it and press ENTER, and the screen will show you the 18 categories (rows) (for example, HOTEL, AIRFARE, AUTO, etc.) entered. Again, you just move the cursor with the down or up arrows to your choice and press ENTER. You will be immediately shown the screen where you enter your expenses under the category and day you picked. Then, just type in the numbers using the down or

up arrows to move you from entry blank to entry blank. At the bottom of the screen you will be shown your total expenses to date for the category involved, and the total you have entered up to now for all categories for the time period you have selected.

If you want, you can go back and pick another time period and category and enter data there also. You can look at all the time periods and categories, if necessary. You can footnote any expense with a symbol like * or ! or # or any letters you care to use and go to your E file and record the footnote. You can display your footnotes on the screen while you are inputting expenses, any time you want. And any time you want you can print out your report. It will print out as a spreadsheet. If your report covers 6 days (or time periods) or fewer, it will print out on a single page. If it covers a longer period, it will print out on two pages. It will show the totals for every day (columns) and the totals for every category (rows), as well as the cumulative total for every day and category. At the top it will show all the title information, and at the bottom your footnotes.

As a budgeting and forecasting tool, the program is excellent. It lets you replicate any entry across the board, and even allows you to increase or decrease those replicated amounts by a certain percentage each month just by pushing a function key and entering the percentage factor.

The flexibility of EXPNS is enormous. You can create a new E file quickly and easily. You can have any category designations you want, and you can save your most frequent formats once you have created them. You can do budgets, forecast projects, petty cash reports, departmental reports, even financial statements. (Just enter income as a positive value and all expenses as negative values, and you can have a P & L report on the totals line.) With the cumulative total feature you can do cash flow analyses—it is just a matter of entering numbers.

Your reports also can have an added dimension if you combine EXPNS with the GRAPH program, as explained below in Sec. 4 of this chapter (GRAPH itself is discussed in Chap. 10). GRAPH will plot either the row totals or the column totals of any E file in one of three graphical formats—pie chart, bar graph, or line graph—with each value representation correctly labeled.

The Model 100 or M-10 combined with the power of EXPNS and GRAPH, is setting new standards for the rapid and effective reporting of numbers information by managers and executives.

2. Loading

- A. Place the cassette labeled EXPNS into your cassette player. Make sure the player and your computer are connected properly.

- B. Rewind the tape completely. It may be rewound already, but make certain. Press PLAY into its locked position.
- C. There are three items that must be loaded into your Model 100 or M-10 in order to run the EXPNS program. All are easy to load. One is a machine code (.CO) file that you have already loaded if you have SCRIPSIT 100 or PRNT10. One is a BASIC file called EXPNS.BA. The third is a text or document file called the E file. We have three examples of E files. We will be loading two of them now (ETRAV and one simply called E). Later in this chapter we tell you about loading the third.
- D. With the cassette player set to run as just described, turn on your Model 100 or M-10. The Main Menu will display. With the cursor on BASIC, press ENTER. You will immediately be sent to BASIC and the screen will say,

Ok

- E. Press F2 and the screen will say

Load "

Type in CAS:CORTNS and press ENTER.

- F. Automatically the cassette player will start running, and after a while the screen will say,

Found: CORTNS

Then after a little longer the screen will say,

Ok

- G. This BASIC program will load the machine code file recorded right behind it. Simply press F4 (run). The screen will say

Run

and the cassette player will again start running automatically. When it stops the screen will say

Ok

- H. Now type in Run 50 and press ENTER. The screen will say

Ok

I. Press F2 and the screen will say

Load "

J. Type in

CAS:EXPNS

and press ENTER. Automatically, the player will start to spin, and while it is spinning, the screen will say

Found:EXPNS

After a few minutes, the screen will say

Ok

Press F3. The screen will say:

Save "

Type in EXPNS and press ENTER. The screen will say

Ok

Press F8 to go to the Main Menu.

K. Do not change any settings on the cassette player. From the Main Menu put the cursor on TEXT and press ENTER. The screen will say

File to edit?

Type in ETRAV and press ENTER.

L. Press F2 and the screen will say:

Load from:

Type in ETRAV and press ENTER. Automatically the cassette will start running, and while it is running the screen will say:

Found: ETRAV

M. When the cassette shuts off, the screen will fill with column labels, etc., which we will discuss below.

- N. At this time, do not type anything on the screen being shown. It is used by your EXPNS program to create your expense reports. We will explain how to use it below. Instead, press F8, which will return you to the Main Menu.
- O. Do not change any settings on the cassette player. From the Main Menu put the cursor on TEXT and press ENTER. The screen will say:

File to edit?

Type in E and press ENTER.

- P. Push F2 and the screen will say:

Load from:

Type in E and press ENTER. Automatically the cassette will start running, and while it is running the screen will say:

Found:E

- Q. When the cassette shuts off, the screen will fill with columns, row labels, etc., which we will discuss below.
- R. At this time, do not type anything on the screen being shown. It is used by your EXPNS program to create your expense reports. We will explain how to use it below. Instead, press F8, which will return you to the Main Menu.

3. Getting Started: How It Works, Using the Standard Format for a New E File

We are going to take you through the simple step-by-step use of EXPNS. The first example will involve a conventional travel report. Then we will show you how to do budgeting and other financial reporting.

To start with, let us assume you are a businessperson on an out-of-town excursion covering a 12-day period. You are leaving on Monday and returning one week from Friday (the typical "two weeker"). You will be recording your expenses on the trip.

Step 1. Go to the Main Menu. Put cursor on ETRAV and press ENTER.
The following format will display on the screen:

```

Title lines:
TRAVEL EXPENSE REPORT:
FOR:Samuel A. Redman
PERIOD BEGINNING:08/15/83
PERIOD ENDING:08/27/83
PURPOSE:Press Conferences & Magazine Interviews:
CITIES:New York & Utica, N.Y.
Unusual expenses without receipts are footnoted
Row labels:
AIRFARE
TIPS
LUNCH
SUPPLIES
LAUNDRY
TAXI
BRKFAST
HOTEL
TEMP SECY
DINNER
P/CAR@.21m
GAS & OIL
TIPS TRANS
RENTAL CAR
MISC.
PHONE LDIS
ENTERTAIN
COURIER
Column labels:
MONDAY-A
TUESDAY-A
WEDNES-A
THURSDAY-A
FRIDAY-A
SATURDAY
SUNDAY
MONDAY-B
TUESDAY-B
WEDNES-B
THURSDAY-B
FRIDAY-B
Notes:
+folders for press conference
!used credit card
@company to be billed later
Misc.:
a.briefcase broke, b.medical expense
Tips:
a.hotel, b.airport & taxi
Print width:70
Data:

```

Step 2. Title lines. Notice that the first section consists of title lines. Moving the cursor with the up and down arrows, position it so you can delete names and information that are not relevant to your report. You

can leave the title headings (such as "FOR:" or "PERIOD BEGINNING:") intact for now, or you can tailor them to suit your own tastes or needs.

Note:

The best way to delete when doing titles is to (a) put the cursor on the beginning letter of the entry you are deleting, (b) press F7 (select), (c) press CTRL/right arrow, (d) press F6 (cut) (which actually deletes the material), and (e) start typing in the new entry.

Step 3. Type in the relevant information about yourself and your trip. You can insert your address here, or even your company's name. And you can use up to nine lines to do so. (But remember: Each of the nine lines allowed must be 80 characters or fewer (taking up two lines each on the 40-character screen).

Step 4. Footnotes. Leave the note section alone for now. Later we will discuss how to insert the footnotes you want.

Note:

On your final spreadsheet printout, the title lines will appear at the beginning. Footnotes will appear at the bottom of the first page of your spreadsheet.

Step 5. Press F8 and return to the Main Menu. Place the cursor over EXPNS and press ENTER.

Step 6. The screen will display all the files the program contains and say:

E file name?

In this example we will be working with ETRAV, which stands for "travel expenses." The program also contains EBUDG, for "business budgets." You can keep many such E files on cassette for every type of financial planning and reporting that you do, including home budgets and financial summaries. Later, in step 31, we will discuss how to create new ones designed for your individual needs.

Step 7. Type in ETRAV (or whatever E file you are going to access) and press ENTER.

Step 8. The screen will now show you the columns (time periods) display:

MONDAY-A	TUESDAY-A	WEDNES-A
THURSDAY-A	FRIDAY-A	SATURDAY
SUNDAY	MONDAY-B	TUESDAY-B
WEDNES-B	THURSDAY-B	FRIDAY-B

Select or change column

Step 9. Now you must select one of them, or you can change any you wish to. To make such changes:

- A. Move the cursor to any of the positions by using the down, up, right, or left arrows. Notice that each position is shown in reverse video as the cursor reaches it.
- B. Both your row and column labels are protected from accidentally typing in numbers or other entries. But you can “unprotect” any of them simply by pressing the function key F2 while the cursor is on it.
- C. After you have pressed F2, press the ESC (escape) key to clear the position. Then simply type in the new time period label (you can put in actual calendar dates if you choose). Notice that while the label position is unprotected, the left and right arrows can move you through the label just like when editing text, so you can correct misspellings, wrong numbers, etc.
- D. You can also backspace or type additions into a label with the cursor in position. After you have finished typing in your new label and making corrections, use the down or up arrow to move to a new label.

Note:

The new label position you have moved to is now protected from accidental erasure of additions. You must press F2 again if you want to make changes here.

- E. You can have as many as 18 column labels; the number we show is only an example. To enter a new one, move the cursor to an empty space, press F2, and type in the entry.

Step 10. Move the cursor to the day for which you want to enter your data. For our discussion, we will assume it to be MONDAY-A. Press ENTER.

Step 11. The screen will now show you the category display.

AIRFARE	BREAKFAST	LUNCH
DINNER	TIPS	SUPPLIES
LAUNDRY	TAXI	HOTEL
TRANS OTHR	GAS & OIL	RENTAL CAR
MISC.	PHONE LDIS	ENTERTAIN
TEMP SECY	P/CAR@.21M	COURIER

Select or change row

Step 12. You can change category labels just like you can time periods. But for now, move the cursor to the category in which you wish to enter an expense (say to TAXI) and press ENTER.

Step 13. Immediately the entry screen will appear. At the bottom it will say:

TAXI Ø MONDAY-A Ø

These two zeros mark the locations where (a) the total for the category (row) to date will appear and (b) the total for the day (column) to date will appear. Later we will discuss how to print out the entire spreadsheet (see step 27 below). At that time, just note there is a total for TAXI expenses for the entire report or file on the spreadsheet's right-hand side and at its bottom a total of all expenses for the day MONDAY-A. In step 16 we will describe how every time you make any entry you can look at these two figures just as they would appear if the report were being printed out right then.

Step 14. Using the down and up arrows, move the cursor about the screen. Notice that there are 18 positions. This is because you can have as many as 18 expense entries in a single category on a single day; of course, 18 taxis in a single day is a little ridiculous, but it is nice to know that you have the flexibility to make that many entries in a category on a single day.

Note:

When these multiple entries for a single category on a single day are printed out, they are displayed individually, not as a sum.

Note:

Sometimes when you are on the time period (columns) screen or on the category (rows) screen, you will find you need to be able to access a specific position very rapidly. Note how quickly the up arrow will move you from the first to the last position on the columns screen. By using the up arrow to move from the last position back toward the middle of the group (positions 18

through 9) and the down arrow to move from positions 1 through 9, you can access the row (category) you want very quickly.

Step 15. Entering an expense. Put the cursor on the first position and type in the amount. Observe the following rules:

- A. You can type in a whole dollar amount without cents and the program will add the decimal point and the zeros following for its calculations.
- B. Do not put in the \$ (the dollar sign).
- C. When your amount is in thousands, do not put in commas.
- D. Do not use the - sign (minus) for any entry because *all* of them are expenses. The - sign will be used later, for other types of budgets or reports where income is offset by expenses and you want to show P & L or cash flow.
- E. Suppose you make a mistake. Just place the cursor over the error and press the ESC key. You will have a clear blank to work with.
- F. If you are typing in a second expense in this category for the same day, do not yet press ENTER. Use the down arrow to move you to the next blank space and type in that entry. When all expenses have been entered, then press ENTER.

Enter 18.00 and 6.55 for TAXI. After pressing ENTER, the screen will then say:

18.00 6.55

TAXI Ø MONDAY-A Ø

Note:

You can go back to this screen at any time and put in more entries for TAXI under MONDAY-A.

Step 16. Calculations. You may have noticed that the totals did not appear down at the bottom as you made your entries. This is because F6 must be pressed for calculations to be carried out. Therefore, the program never adds in the numbers you are just now typing to the total until you press F6.

Keep in mind that the more numbers entered, the longer calculations take. If you are building a large spreadsheet, you may find yourself slowed down because of the large amount of data the machine must total up. Use your best judgment and press F6 when you want to view updated totals, keeping in mind that you may have to wait a short while when they involve a lot of numbers.

Also, any time you exit to the Main Menu by pressing F8, or print by pressing F7, the program automatically recalculates.

Step 17. Function key labels. Let us see what special uses the function keys F1 through F8 are programmed to carry out in EXPNS. Push the LABEL key and look at the labels which appear across the bottom of your screen:

Clr	Ptct	Repl	Title	Ntes	Calc	Prnt	Menu
1	2	3	4	5	6	7	8

In steps 9 and 16 above, we just explained F2 and F6. Later we will talk about the others. Remember, the purpose of the labels is to serve as a reminder. If you forget which F key does what, just push the LABEL key, and read the screen.

Step 18. Having pressed F6 so that all your entries made back in step 15 have been totaled, press ENTER and you will be back at the 18 categories (rows) of expenses again. Place your cursor (using up or down arrows) on the next category for which you wish to enter a MONDAY-A expense. (*Remember:* We are still in MONDAY-A and will stay there until we use the correct procedure to exit from it, a procedure we will show you in a moment.)

Now choose another category, say AIRFARE.

Step 19. With the cursor on AIRFARE, press ENTER; when the screen appears, enter your amount, say 314, and press ENTER again. The screen will look like this (notice the totals at its bottom):

314.00

AIRFARE	0	MONDAY-A	24.55
---------	---	----------	-------

The totals now include the TAXI entries for MONDAY-A, but the AIRFARE entry will not show under its own totals label or be added to the overall MONDAY-A total until you press F6 again.

Step 20. Now suppose that it is not Monday when you are entering expenses, but instead Friday, and you are entering expenses for the week.

- A. Imagine you are sitting on your bed in a hotel room, or on a plane, with a pile of receipts and you want to enter them—one each for Monday and Thursday, one for Wednesday, then another two for Tuesday.
- B. Well, it is easy to do! Remember that when we entered our last expense under TAXI and pressed F6, we then pressed ENTER and the program took us back to the original 18 categories. We were still in MONDAY-A, but just press CTRL/up arrow and you will be back to the time period screen again.
- C. Move the cursor over to WEDNES-A and press ENTER and you will be ready to pick a category for your Wednesday expense, say TEMP SECY. Press ENTER. Of course the totals at the bottom of the screen will say:

```
TEMP SECY    Ø          WEDNES-A    Ø
```

because there has as yet been no entry in either this category or this day. In the first position type in 84 and press ENTER. Then the screen will say:

```
84.00
```

```
TEMP SECY    Ø          WEDNES-A    Ø
```

Press F6 if you want to see the updated totals, and press ENTER to be sent back to the 18 expense categories (you will still be in WEDNES-A).

- D. Now press CTRL/up arrow to go back to the time period screen and call up TUESDAY-A for the two Tuesday entries. Follow the same procedure for the Monday and Thursday entries.

Step 21. Scrolling the titles. Occasionally you might like a reminder of what this report is for. Any time you want, you can review the title

lines appearing at the beginning of the file. Simply press F4. The titles will immediately scroll across the screen. (If your titles take up more space than available on the screen, you can quickly press the PAUSE key to stop the flow.) Pressing F4 again will take you back where you were in the program. If you forget how to use this feature, press the LABEL key. "Ttle" above the number 4 will tell you it is F4 that will allow you to see the titles.

Step 22. Footnotes. Now suppose you have several expenses that are somewhat irregular. They are going to look a little funny without some further explanation. After any expense, you can type in a symbol. You can use *, +, !, #, or = and you can use letters like a, b, c, d. *Do not* use a minus sign, however. *Remember:* You can only have a one-letter or one-symbol designation. If you type in a second one, it will not show up when your computer calculates or prints out.

Here is how to do footnotes:

- A. Exit from where you are by pressing F8 and go to the E file.
- B. Drop down to the footnotes section. The easy way to do this is by pressing F1. The prompt "String:" will come onto the screen; type in NOTES and press ENTER.
- C. If there are some notes already there that you do not want, delete them. Delete the carriage return as well unless you are inserting a new note on that line.
- D. Now just type in each footnote symbol, with the explanation of what it means. The final printout can have as many as nine full lines of symbols and explanations, each line containing 80 or fewer characters. (Remember, this means 18 screen lines of 40 characters each.) Each 80-character line must have a carriage return at its end.
- E. You can literally have as many symbols and explanations as you can get on the nine lines. Look at this example:

```
Notes:◀
* no receipt for these expenses. # flat tire.◀
MISC.:◀
a. Briefcase broke b. Medical expense c. Lost wallet
d. Kicked dog. Settled with owner.◀
```

- F. Notice how if you have several unusual expenses in one category, you then can do an a, b, c, d breakdown under it. You could have MISC. a, b, c, as well as TIPS a, b, c, etc.
- G. Another way to work with the footnotes is to put them in after you do your first printout. Like this: (1) Every time you have an

expense that needs a footnote, just put a symbol beside it. (2) Then, while you are looking at the symbols on your printout, go into the E file and record them, along with their explanations.

Step 23. Footnote display. There is one feature you will miss out on if you write your footnotes at the printout stage: footnote display. If at any time while in the program you want to see what footnotes have already been written, press F5. They will be displayed immediately on the screen. If your footnotes take up more lines than the screen can show, merely press the PAUSE key to stop them as they scroll by. Pressing F5 a second time will take you back to where you were in the program. One good approach to setting up a footnoting system is to have some standard headings you always keep in the file, such as:

- * lost receipt
- ! used credit card
- @ company to be billed later

Remember: You can have as many footnotes as will fit on nine lines, and you can use each one as many times as you wish. If you forget which key to press in order to display the footnotes, press the LABEL key. "Ntes" over the number 5 at the bottom of the screen will serve to remind you.

Step 24. Across-the-board replication. Occasionally, you will have an expense that remains the same across the entire span of time periods covered by your file, such as costs for hotels, rent, your car, or per diem allowances. In EXPNS you can "replicate" this amount (i.e., make a replica of it) in all those time periods merely by pressing F3. This function is normally used for budgeting and for forecasting expenses, and is discussed in detail in step 33 of this section below. But here are a few tips on using replication in EXPNS:

1. Remember, when you are doing an expense report, and you want the same value in several or all the time periods, your multiplier is 1. Type in 1 when prompted for this. For example, suppose you are doing a 6-day report and you want the same value in five of the days for a certain category. When making the entry you want replicated, you must first type it in; then return to that entry and press F3. Type in the multiplier, and press ENTER. Next you will be prompted by "End at col #?" Type in the number of the last column where you want the replication to appear, press ENTER, and it will be done. (Of course you must already have named the columns.)

2. Also remember that you can only replicate already entered amounts. For example, an amount entered in the fourth column will be replicated only from the fifth column on to the last one you specify, not in the first three.
3. If you forget which key allows you to replicate, press LABEL. "Repl" over the 3 below the screen will remind you which one it is.

Step 25. Printouts. Any time you want, you can get a printout of what you have entered in your file up to that point. Just press F7. You will get an entire spreadsheet—and you do not need to press F6 for all the numerical values to be added, subtracted, or multiplied. Pressing F7 also automatically instructs the program to carry out all the necessary calculations. The totals for each category of expense (rows) will be shown in the far right-hand column, and the totals for each time period (columns) will be shown in the bottom row. Want two copies? Just press F7 twice.

Note:

There is a key labeled PRINT. This is not for EXPNS. It is for text only. If you push the PRINT key while in EXPNS, you will get a printout of only what the screen shows. F7 gives you the entire spreadsheet. If you forget: Press the LABEL key. "Prnt" over the 7 tells you to press F7 to print the entire spreadsheet.

Note:

If the report you want printed out involves the entire 12 days of your trip, you will get a spreadsheet that takes up 140 characters or spaces. If you have an 160-character printer, it will print out across the page as needed, provided you change the print width entry in your E file to match the width your printer can print out. But if you have an 80-character printer and your print width is set at 70, the printer will break the report after the sixth time period, skip a page, and print the rest. You can then tape the two parts together if you wish.

Note:

The print width for the ETRAV file discussed earlier in this chapter is set to 70. You can change this, however, to correspond to other widths, should it be necessary.

Step 26. Printing only a few days of a report. If you are like most people, the idea of printing out as you go or at least after you have made each day's entry might have a big appeal. But in that case, you will not need to print out all the 12 time periods on most occasions. You can print out as many or as few of them as you wish. For example:

TRAVEL EXPENSE REPORT
 FOR: Michael Stanford
 PERIOD BEGINNING: 06/06/83
 PERIOD ENDING: 06/07/83
 PURPOSE: Attend NCC conference
 CITIES: Houston, Texas
 Unusual expenses without receipts are footnoted

Category	MONDAY	TUESDAY	Total
AIRFARE	45.00	45.00	90.00
BRKFAST	5.35	4.25	9.60
LUNCH	8.15	9.23	17.38
DINNER	12.00	14.90	26.90
TIPS	2.40	1.25	3.65
	4.00	4.00	8.00
	5.00	6.00	11.00
TAXI	12.00 +	5.00	17.00
HOTEL	48.00 !	48.00 !	96.00
GAS & OIL	13.00	10.50	23.50
RENTAL CAR		24.99	24.99
PHONE LDIS	7.35		7.35
ENTERTAIN	21.00 *		21.00
Total	134.25	173.12	307.37

*lost receipt

+home to airport

!company will be billed later

Here is how to handle it:

1. The best way is to start with a brand new E file. That way you can just type in as many days (time periods) and as many categories as you want. Read more in step 29 on how to make new E files.
2. If you like, however, you can also revise an existing E file so it involves fewer time periods or categories. (But you cannot just press ESC and blank out the columns you do not want. That feature is only for *changing* columns, not deleting them completely, even if you enter empty spaces in the attempt to delete.
3. To revise an existing E file, take the cursor down to the column labels. (Make it easy on yourself. Press F1 right after the file comes on the screen. At the prompt "String:" just type in COL and press ENTER. You will be sent right to the columns.)
4. Using the delete function (either SHIFT/backspace or the method we described earlier in the chapter), remove the column labels you do not need. Do not leave any dangling carriage returns, and do not upset the carriage returns of the entries above or below what you are taking out.
5. Alternatively, you can take out everything but the first entry (you want to leave something on the screen) and then build your first day. Then print it to build your report day by day.

TRAVEL EXPENSE REPORT						
FOR: Samuel A. Redman						
PERIOD BEGINNING: 08/15/83						
PERIOD ENDING: 08/27/83						
PURPOSE: Press conferences and magazine interviews						
CITIES: New York, N.Y.						
Unusual expenses without receipts are footnoted						
Category	MONDAY-A	TUESDAY-A	WEDNES-A	THURS-A	FRIDAY-A	SATURDAY
AIRFARE	314.00				. 0	
BREAKFAST		3.25	3.49		4.50	4.85
LUNCH	12.50	8.75	4.20	9.80	6.10	
DINNER	13.80	17.60	12.75	18.40	26.50	28.75
TIPS	3.50	3.20	4.75	2.50	7.80	5.20
	3.00a		. 0			
	4.50b					
SUPPLIES				26.60+		
LAUNDRY				68.50		
TAXI	18.00	9.00	22.00	11.00	6.00	
	6.00				19.25	
HOTEL	95.63!	95.63!	95.63!	95.63!	95.63!	95.63!
TRANS OTHR						
GAS & OIL					11.50	
RENT CAR					63.95!	
MISC.		45.50a			16.00b	
PHONE LOIS	11.76	19.24	8.87	8.87	26.72	18.80
TEMP SEC			84.00			
P/CAR@.21m	6.45				.	
COURIER			14.50Q			
Total	489.14	202.17	250.19	241.30	283.95	153.23
		691.31	941.50	1182.80	1466.75	1619.98

+ folders for press conference
! used credit card
Q company to be billed later
Misc:
a briefcase broke
b medical expense
Tips:
a hotel
b airport

Figure 9.1a

6. If you want the numerical values only cleared out (deleted), press F1 while in the EXPNS program. See step 29 below for more details on using F1.

Step 27. Figure 9.1a and b shows a complete printout for a 2-week trip, including some of the footnotes and features we have described so far. Observe entries of . 0. This is where a value was entered and then eliminated with the ESC key. The printer skipped a page before printing the second half of the report. If you are using the printout for a presentation, you can tape both halves together vertically, being careful to align the rows and columns.

Step 28. Some reminders and new information:

- A. When you are in your E file, remember not to upset the positions of the carriage returns. They are critically placed.

SUNDAY	MONDAY-B	TUESDAY-B	WEDNES-B	THURS-B	FRIDAY-B	Total
					314.00	628.00
	3.12	2.54	4.50		4.50	30.75
3.25		12.75	7.66	9.19		74.20
12.22	10.69	22.60	16.58	22.50		202.39
3.00	4.25	4.60	3.25	6.50	1.50	68.05
	. 0	. 0			6.00a	
		. 0			4.50b	
			38.23			25.60
	5.73	9.88		5.75	6.00	106.73
	7.50	7.25		9.35	19.75	162.46
95.63!	95.63!	95.63!	95.63!	95.63!		1051.93
	4.50					4.50
						11.50
						63.95
						61.50
	8.27	15.40	11.63	5.80		135.36
						84.00
						6.45
						14.50
114.10	139.69	170.65	177.48	154.72	356.25	
1734.08	1873.77	2044.42	2221.90	2376.62	2732.87	2732.87

Figure 9.1b

- B. If you get an error message (error 5, 9, or 53), you most likely have upset something when you made entries into the E file. You will get a message that says:

Bad file format

When you see this, press ENTER. You will next see:

Error 53

(or whatever error number correctly describes the problem). Press ENTER again and you will be sent back to the Main Menu. Go immediately to the E file that you are working with and straighten out the problem. (Look especially for extra carriage returns. See your Model 100 or M-10 manual for a full description of what the various error message numbers mean.)

- C. If you push ESC (escape) and blank out a number already entered, you will get a 0 on your value screen when you recalculate. You will also get a 0 on your report if you print out without exiting. However, when you exit (by pressing F8) and come back again into EXPNS and call up this E file, no 0s will show visually, and none will show on the printout.
- D. When you are entering numbers, and you move to the second, third, etc., position, bypassing the others, to make an entry, you *will* get

.0 in each position you bypass, and it will appear visually both in the calculation (F6) and printout (F7).

- E. Earlier we said that you could put in numbers without the decimals and zeros following, since EXPNS adds them for you. It also adds them even if you put a footnote letter or symbol after the number. For example, if you entered an expense of 480a, the program would print it out as 480.00a.
- F. You may find it is much more comfortable for you to activate the 10-key numeric pad hidden away on your keyboard. When you are in EXPNS and you are ready to start entering numbers, just press the NUM key. You can then rapidly key in your expenses just like with a calculator.

Step 29. Clearing all value entries. If you are revising an old report, you can easily wipe out all the obsolete expense entries by using the F1 key.

- A. Save a copy of the old file if you need it, either on cassette or in a new text file (see step 32 below).
- B. Go into EXPNS and enter the E file you will be clearing and working with.
- C. Press F1. The screen will say:

Kill all?

- D. This is just a protection device in case you might accidentally have pushed the F1 key. Type in Y for "yes" if you want them all deleted. Type in N for "no" if you do not.
- E. If you type in "yes," all the numerical (value) entries for that file will be wiped clean.
- F. Neither the old values nor 0s will show on your entry screens. Nor will 0s show when you print out or when you exit (by pressing F8) and reenter the file.
- G. If you forget which button clears, press the LABEL key. "Clr" over the 1 will remind you to use F1.

Step 30. Exiting to Main Menu.

- A. Pressing F8 will exit you from EXPNS; it is the only proper way to exit.
- B. If for any reason when you press F8 nothing happens, press ENTER.

- C. If an error message ("Bad file format") appears, press ENTER again and follow the steps described in step 28 above.
- D. If you need to go SHIFT/BREAK for any reason, such as to stop during printing, you will be exiting the program improperly unless you type in CONT and press ENTER. This action will return you to the Main Menu and save your entries.

Step 31. OS error. Occasionally when you are doing a spreadsheet with many entries, you might get a screen message that says:

OS error

This means you are, in computer terminology, "out of string space." In other words, there is not enough room allotted to make additional entries. To solve this situation, go SHIFT/BREAK and at the "Ok" prompt type in EDIT 1; then press ENTER. You will see a line of computer code appearing on your screen. Simply change the 3000 to 5000 or more for additional string space. Then press F8 twice to take you back to the Main Menu. The only disadvantage to this technique is that you must have an amount of available free memory in the computer that is equal to whatever amount of string space you have cleared.

Step 32. Making new E files by revising old ones. You will want to create new E files for expense reporting other than travel. Here are some rules and ideas on doing so.

You have two options for a new E file: You can either revise an existing format or start a new one. The rule for deciding which to do is simple—revise if you have an E file whose information would just have to be retyped, like titles, categories, kinds of time periods, or footnotes; for more extensive changes, create a new file. We describe the second option later on. Here we discuss how to revise an existing file.

To store an existing E file that you want to revise on cassette:

1. Connect the cassette player to your computer as described in your M-10 or Model 100 manual. Rewind the cassette tape if necessary and advance it past the leader. Push PLAY and RECORD into their locked positions.
2. Go to the Main Menu, and placing the cursor on the E file you want to save, press ENTER.
3. When the file appears on the screen, press F3. The screen will say:

Save to:

4. Type in the name of E file—for example:

Save to:ETRAV

Press ENTER.

5. The cassette machine will run automatically and shut off when the saving is complete. Repeat, without touching the cassette recorder, steps 3 and 4, for backup recordings.

To revise the format:

1. Go into the E file you have on your Menu, press F7 (select), and then press CTRL/right arrow. This will block out a line in reverse video.
2. Now by pressing CTRL/down arrow, block out the entire file. You do not want the data entries either, but you can eliminate those with the F1 (clear) function key. See step 29 above.
3. Now press F5 (copy), and then F8 (exit).
4. You will be back at the Main Menu again; move the cursor to TEXT and press ENTER.
5. When "File to edit?" appears on the screen, type in E and up to four other letters, and press ENTER.
6. Press the PASTE key. You now have created a new E file.
7. Adjust the title heading and standard footnotes to fit.
8. Leave whatever categories and time periods you want to start with. Eliminate any extra ones not required for your purposes.

To start a totally new E file:

1. Remember when we loaded from cassette, there was one file called simply E. Go to that file on the Main Menu and press ENTER.
2. It will appear like this on your screen:

```
Title lines:◀
Row labels:◀
Column labels:◀
Notes:◀
Print width:70◀
Data:◀
```

3. If you have lost your E file, you can reload from the program cassette or create a new text file labeled E and type in the format

exactly as you see it above. Be very careful to keep the layout with the carriage returns exactly as you see them.

4. Follow exactly steps 1 through 6 given above for revising the format of an E file in order to copy the E file now.
5. Type in your new title lines and footnotes, and adjust the print width if you want one different from 70 characters wide.
6. There is no need to put in any category (row) labels or time period (column) labels. You will type them in from the EXPNS program. Press F8 to go to the Main Menu.

Caution: When you type in new row and column labels from the EXPNS program, you must always press ENTER after typing the last one in the series. For example: If you typed in JAN through DEC and then went back to JAN to press ENTER, you would lose all the labels except JAN. Press ENTER after typing DEC.

7. Go to EXPNS, type in your new E file name, and you are in business.

Step 33. Other applications. As we described in Sec. 1 of this chapter, you can use EXPNS for many different kinds of financial planning and reporting. One example is budgets. The following are some thoughts on and instructions for setting up a budget with EXPNS.

Budgets have + amounts (income) and - amounts (expenses). All expenses in budgets and financial reports that are being offset by income must be entered as negative numbers. Just use a - sign as: -840.28. When making a budget, you will want to have the ability to replicate both income and expense entries across the entire range of time periods. Also, you will want to be able to increase the replicated entries (or decrease them) by a certain factor each month or year, etc., as necessary. Here is how you do it:

1. Go to the category you want replicated and enter the amount of the first time period's entry.
2. Press F3. The screen will say:

Multiplier?

3. Type in the factor by which you want the amount changed each month. For example: (a) If you want sales to increase 10 percent per month, type in 1.1, and press ENTER. (b) If you want it to stay the

same, type in 1 and press ENTER. Or (c) if you want it to decrease 10 percent per month, type in .9, and press ENTER.

4. Next the screen will say:

End at col #?

5. Type in the number of the last column where you want the replica to appear, and press ENTER. (You must already have named the columns.)
6. Those amounts will automatically be entered into the columns you specified.
7. Remember, you can only replicate from any column forward. So if you want to replicate a value you just typed into the fourth column, do your F3 replication. That amount will be replicated from the fifth to the last column you indicate.

Step 34. Budgets. Also on your EXPNS cassette is an E file labeled EBUDG. Refer to the loading instructions in Sec. 2 of this chapter and load EBUDG into your Model 100 or M-10.

Figure 9.2 shows a 2-month planning budget prepared for a hypothetical small factory. It illustrates some of the possibilities for you.

If any entry or total exceeds 99,999.00, the number will not be printed out. Instead, as you can observe in Fig. 9.2, eight asterisks will be displayed: *****. This is true also for the visual screen of your computer. But while the entry will not be displayed or printed out, EXPNS does remember it, and uses it correctly in all its calculations.

Note:

While EXPNS only displays numbers up to 99999.00, if your calculations involve higher figures, you can use the conventional accounting method of omitting the zeros after the decimal points.

Get creative with EXPNS. By means of it, you can do cost analyses, profit and loss statements, and budget projections. Notice that across the bottom of your printout appears the cumulative totals. This feature can be used to help do cash flow analyses and projections.

4. EXPNS/GRAPH

You can dynamically show any data that you have compiled with EXPNS in either a pie chart or a bar or line graph. Detailed instruc-

BUDGET PROJECTIONS
 MINUSCULE FABRICATING CO
 DATE:09/14/83

Category	MONTH A	MONTH B	Total
SALES	89500.00	98450.00	*****.**
RAW MATERI	-8500.00	-9350.00	-17850.00
FCTRY SUPL	-780.00	-850.00	-1630.00
FREIGHT	-2255.00	-2480.00	-4735.00
RENT/UTIL	-4689.00a	-4689.00a	-11761.00
	-1135.00b	-1248.00b	
RETRNS/SCR	-2250.00a	-2475.00a	-6825.00
	-1000.00b	-1100.00b	
LABOR	-8975.00	-9872.00	-18847.00
EXEC SALRY	-11500.00	-11500.00	-23000.00
CLERICAL	-5600.00	-5600.00	-11200.00
OFFICE SUPL	-450.00	-495.00	-945.00
TELEPHONE	-4200.00*	-5300.00#	-9500.00
MARKETING	-6400.00	-9200.00#	-15600.00
ACCOUNTING	-3200.00	-3200.00	-6400.00
INSURANCE	-1400.00	-1400.00	-2800.00
AUTO/TRUCK	-1100.00	-1100.00	-2200.00
CAPTL EQP	-7600.00!	-5800.00!	-13400.00
LEGAL	-4500.00	-4500.00	-9000.00
CNTNGNCIES	-3500.00	-3500.00	-7000.00
Total	10466.00	14791.00	
		25257.00	25257.00

* Same as last period
 # Includes new product promotion
 ! Current quotes, good for 90 days
 RENT/UTIL
 a Rent
 b Utilities
 RETRNS/SCR
 a Returns
 b Scrap

Figure 9.2

tions about graphical work are provided in Chap. 10, but the following is a summary of the procedure as it relates to EXPNS.

GRAPH will plot the row or the column totals of any E chart and print the labels for each value (number) along with its percentage of the total amount.

1. From the Main Menu, go to GRAPH. On the screen will appear the prompt

P>ie, B>ar, or L>ine?

You can type in the letter of your choice.

2. If you choose B or L, you will be asked the following:

Height (inches):

Type in the value you want and press ENTER. Then you will be asked:

Width (inches):

Type in the width you want, and press ENTER.

3. After you enter those dimensions, or if you typed in P (for pie), the files will be displayed and the screen will say:

E file name to graph?

4. Type in the name of an E file that you have prepared with EXPNS and press ENTER.
5. The screen will then say:

By R>ow or C>olumn?

6. Remember that rows are the categories and columns were time periods in our examples.
7. GRAPH will print out your data in the chart form you chose, with these features:
 - a. Your first title line, if printed as a header, will be centered across the page. All your other title lines will follow, set flush left.
 - b. Every value will be labeled, and the label will be positioned in accordance with what it graphically represents.
 - c. The percentage value of each amount will be shown following each label on pie charts, and the actual value will be shown under each label on bar and line charts.
 - d. A footer will give the total number of all the units (dollars, people, pounds, etc.) plotted.
8. If you have a report like the budget discussed in step 34 of Sec. 3 above, you will have to make a slight adjustment before graphing. You cannot graph positive and negative values together. This is because charts are graphical expressions of parts of a whole. In the case described in step 34, press the ESC key and erase the positive (income) values in the sales category before charting. That way you will be doing a graph of all the expenses.

9. If you have only one set of values (numbers) that you wish to graph and you want to present a neater printout showing only that single numerical column, just set your print width (that is, the number of characters allowed across the page's width) to 20. The "totals" column GRAPH uses will be the same for the one column of values, but it will not show on the first page of your printout. For example:

DAILY SALES FROM
WAREHOUSE, IN POUNDS

Category APPLES LBS

MCKINTOSH	265.00
ROME	563.00
GOLDEN DEL	248.00
JONATHAN	369.00
RED DELIC	325.00
GREEN	321.00
WINESAP	125.00
TOTAL	2216.00

The totals column on the far right will still print, but it will appear on the next page, which you can discard.

Study Chap. 10 for a more detailed explanation of how to do graphs from your E charts, but it should already be obvious that EXPNS/GRAPH creates a spreadsheet unlike any other in existence. It is designed for the businessperson who meets the user profile for the Model 100 or M-10 type of computer. The user inserts no mathematical formulas. All the mathematical operations needed are built right into the program. It is designed to rapidly generate financial reports, expense reports, cash flow analyses, budget projections, and budget forecasting by department (or even for an entire corporation). Furthermore, the spreadsheet it generates is truly "three-dimensional"—income and expenses can be charted and compiled not only by any of up to 18 categories in any of up to 18 time periods, but there can be as many as 18 entries at any of those junctures. This means there are 6041 possible entry locations, with 250 actual locations allowed per report. Plus the user has the ability to footnote any expense or income entry on the report by using up to 18 of the 40-character screen lines for footnote notation (nine lines, each containing up to 80 characters, in the final printout).

5. EXPNS Command Summary

- CTRL/up arrow takes you back from the categories (row) screen to the time periods (column) screen.

- F6 calculates all the entries made up to the time when it is pressed.
- NUM activates the numeric pad (which is like a calculator keyboard).
- F7 prints out the spreadsheet.
- F7 pressed twice prints two copies of the spreadsheet.
- F2 unprotects column and row labels for typing in new labels.
- Arrows move cursor about the time periods (column) or categories (row) screens or value entry screens.
- ENTER (1) moves you from the time periods (column) screen to the categories (row) screen in the time period where the cursor was placed. (2) It also moves you from categories screen to the value entry screen in the category where the cursor was placed. (3) And it records your entry and moves you back to the categories screen.
- F5 displays the footnotes. F5 pressed a second time returns you to the screen where you were before you pressed it the first time.
- F4 displays title lines. F4 pressed a second time returns you to the screen where you were before you pressed it the first time.
- ESC clears out a single value entry, leaving 0.00 (on screen; . 0 on printout).
- GRAPH: Go to GRAPH and enter the name of the E file you want graphed, the type of chart (P>ie, B>ar, or L>ine), and whether you want rows or columns graphed. (You must designate height and length for bar or line graphs.)
- Titles: Type into the E file; there is a limit of nine lines containing 80 characters each with a carriage return (18 lines of 40 characters each on the computer's screen).
- Notes: Type into the E file; the same character and line limits apply here as for titles.
- Value entry: Type in the value and press ENTER. You can enter up to 18 values in a single category. Use a single symbol or letter for any footnote needed. - means a negative number, which offsets positive values (+ not necessary for positive values).
- F1 clears; its prompt is "Kill all?" You type in Y for "yes" or N for "no."
- F3 replicates any values. Its prompt is "Multiplier?" Type in 1 for the same value, 1.1 for a 10 percent increase per time period, .9 for a 10 percent decrease per time period, 2 for a doubling during each time period, etc. Press ENTER. When the prompt "End at col #?" appears, type in the number of the column you want the replication to stop with. (You must have labeled all columns previously.)

- F8 returns you to the Main Menu.
- SHIFT/BREAK stops the printer prematurely or in an emergency.
- CONT typed in and ENTER pressed after SHIFT/BREAK saves all the entries and returns you to the Main Menu.
- OS error means you should go SHIFT/BREAK, type in EDIT 1, press ENTER, change 3000 to 5000 or more, then press F8 twice.
- LABEL displays the function key labels.
- PAUSE stops the scrolling of titles or notes across the screen.
- Rules: (1) For entries, type in numbers only, no \$ signs. (2) Do not type in commas in numbers entries having four or more digits. (3) Skipped positions on the value screen will result in 0.00s (on screen; . 0 on printout) in the places before the entry positions. (4) Carriage returns and their positioning are important in E files.
- Adjusting print width in E file. Print width for E files: 70. If you want to change it, change the number.
- Making a new E file from an old one: Copy the old E file to preserve it. Type in titles and notes. Go to EXPNS. Enter categories and time periods on their screens. Press ENTER after typing last of your new row and column labels.
- *****.** means number entered or totaled is larger than 99,999.00. The program remembers the number for calculations, but does not show it on the computer's screen or the printout. Omit zeros after decimals when entering very large numbers.

The GRAPH Program

1. What It Does

GRAPH enables Model 100 or M-10 users to dynamically present data in the form of pie charts, bar charts, or line graphs. It will print up to 18 entries with their labels per graph, on any of five Radio Shack dot matrix printers or the Radio Shack CGP color pen plotter.

The program is simple to use, and works from E files generated by your EXPNS program. It will produce any of the three kinds of graphs or charts using either the category (row) data or time period (column) data. (It will also plot a single set of data, since those numbers would, of course, constitute a single column's worth of entries.)

Every graph is printed with the first of your E title lines as a centered heading; the remaining headings are set flush left below. The labels with their values are printed: the percent of the overall total value given next to each label on pie charts and the actual numerical value on bar and line charts. Each label and numerical percentage or value is positioned so as to correctly identify its own section of the graph.

Using GRAPH is easy. From the Main Menu, place the cursor on GRAPH and press ENTER. You will be shown the prompt "P>ie, B>ar, or L>ine?" Type in the letter for the type of graph you want. You will also be able to pick which of six printers you want to use: (1) DMP 100, (2) DMP 120, (3) DMP 200, (4) DMP 400, (5) DMP 500, or (6) CGP 115. You will then be asked which E file to plot. Type in the name of the file and press ENTER. That is all there is to it. GRAPH does the rest (although for bar and line graphs you must give the height and width because you can specify size). Pie charts will be printed out 3 inches in diameter, complete with labels and their percentages and the totals of all the entries plotted. For line and bar graphs you are limited

to the size of the paper you are printing on—8½ inches by 11 inches is standard.

As you can see from the examples of graphs shown in Sec. 4 of this chapter, GRAPH can make your business reports come alive. When you provide your business associates with both graphs and a spreadsheet of the data in your reports, the points you want to make will be demonstrated with style. Now we give step-by-step instructions on how to load the program and produce your own graphs. Read the EXPNS chapter thoroughly before continuing.

2. Loading

1. Place the cassette labeled GRAPH into your cassette player.
2. Rewind the tape. It should be rewound already, but make sure.
3. Connect the recorder to your M-10 or Model 100 as shown in your manual. Push the PLAY button into its locked position. Adjust the volume control to between 4 and 5.
4. From the Main Menu place the cursor on BASIC and press ENTER. You will immediately be sent to BASIC and the screen will say

Ok

5. Press F2 and the screen will show:

Load "

6. Type in CAS:GRAPH and press ENTER. Automatically the cassette will start running, and while it is running the screen will say:

Found:GRAPH

7. When the cassette stops the screen will say,

Ok

Press F3 and the screen will say:

Save "

Type in GRAPH and press ENTER. The screen will say

Ok

8. Press F8 to return to the Main Menu.
9. On the Main Menu will now appear GRAPH.BA.

3. Getting Started

The instructions for GRAPH are simple, because it is so easy to do.

1. From the Main Menu place the cursor on GRAPH and press ENTER. The screen will say:

P>ie, B>ar, or L>ine?

You type in the letter for the chart of your choice.

2. Next the screen will show:

1. DMP 100 2. DMP 120 3. DMP 200
4. DMP 400 5. DMP 500 6. CGP 115
Which printer?

3. Simply type in the number (1 through 6) that represents the printer you are plotting on.
4. If you typed P earlier, the files will now all be displayed and the screen will say:

E file to graph?

5. Type in the name of the E file you have prepared with EXPNS and press ENTER.

Note:

If you merely have one set of values and labels that you want a graph of, you can quickly enter them by means of EXPNS. Just make up an E file as explained in Chap. 9.

6. The screen will then say:

By R>ow or C>olumn?

7. Remember, rows are categories, the names of which are listed on the left-hand side of the EXPNS printout. Row values run from left to right. Type in R for row or C for columns. Remember that GRAPH plots the totals.
8. If you typed P for pie chart earlier on, the header lines will be printed immediately. The first header line is centered. Then the program begins calculating out the "slices" of the pie. On the

screen it will show you how many angles there will be, along with their values in degrees. In the lower right-hand corner, you can watch the program calculate the dots needed for printing the parts of the circle. After calculating the first half, it will print it out complete with value labels and the percentage each value is of the total. Next it will calculate the second half. Depending on how many values you have, this whole process can take from 1 to 2 minutes. Finally, when all the calculations are complete, it will print out the bottom half of the pie.

9. As we noted earlier, pie charts show the label for each row of the E chart being graphed and the percentage each value is of the total. (See Fig. 10.3 below.)
10. Unlike the bar or line chart, the pie chart requires somewhat of a wait. How long depends on how many slices there are. This was a necessary tradeoff. The program produces a beautifully executed and accurate pie chart, but speed of plotting had to be sacrificed to save memory.

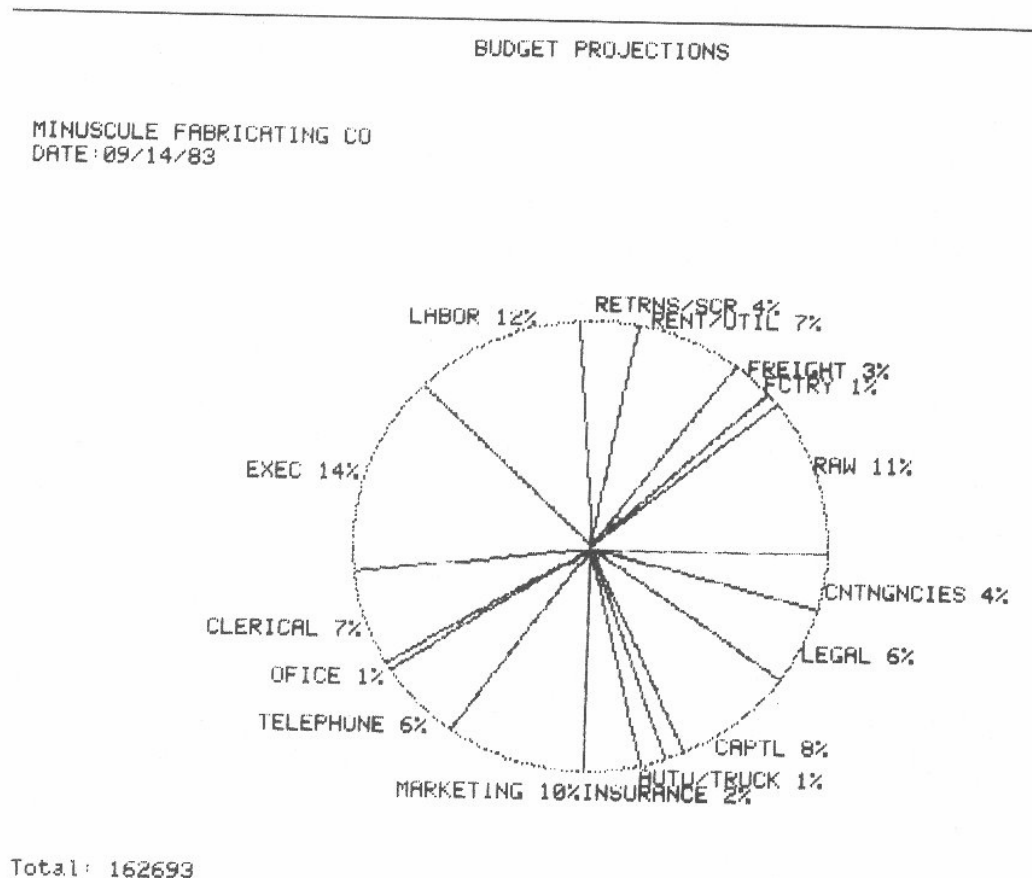
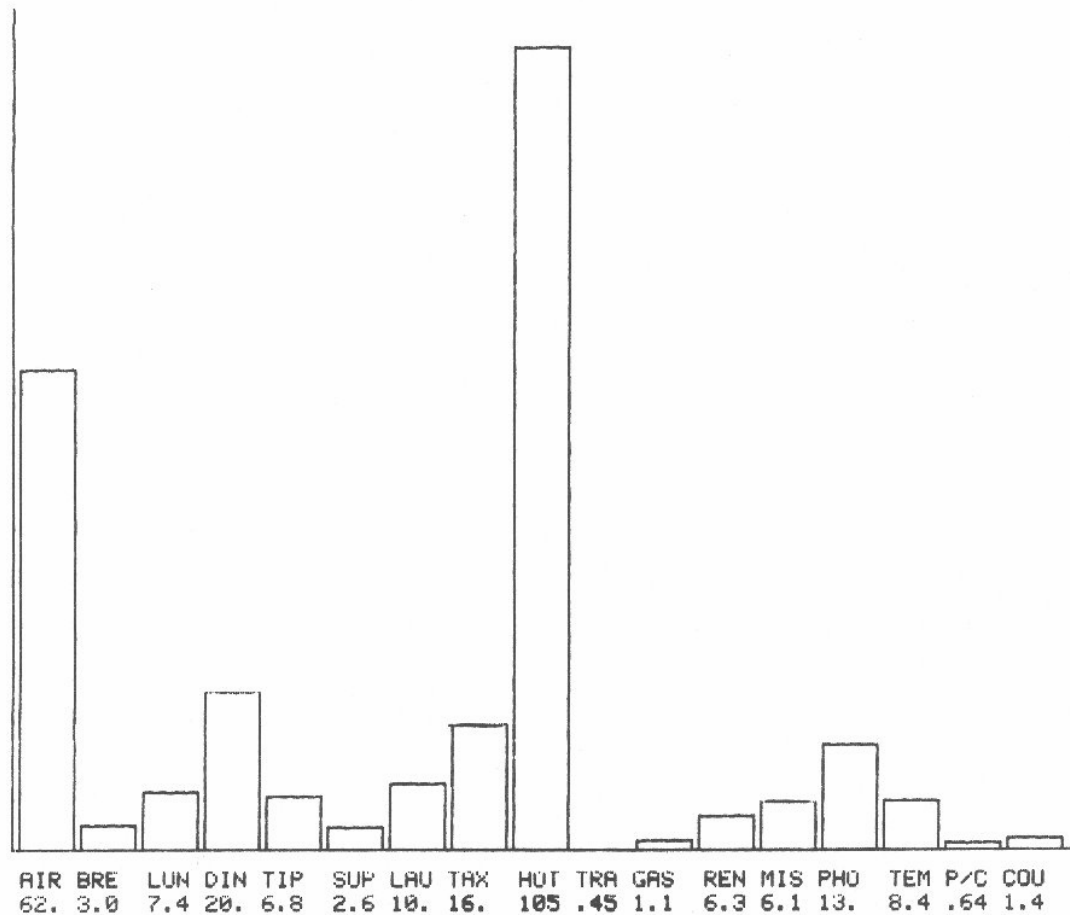


Figure 10.1

TRAVEL EXPENSE REPORT

FOR: Samuel A. Redman
 PERIOD BEGINNING: 08/15/83
 PERIOD ENDING: 08/27/83
 PURPOSE: Press conferences and magazine interviews
 CITIES: New York, N.Y.
 Unusual expenses without receipts are footnoted



(Values in 10's)

Total: 2732.87

Figure 10.2a

TRAVEL EXPENSE REPORT

FOR: Samuel A. Redman
 PERIOD BEGINNING: 08/15/83
 PERIOD ENDING: 08/27/83
 PURPOSE: Press conferences and magazine interviews
 CITIES: New York, N.Y.
 Unusual expenses without receipts are footnoted

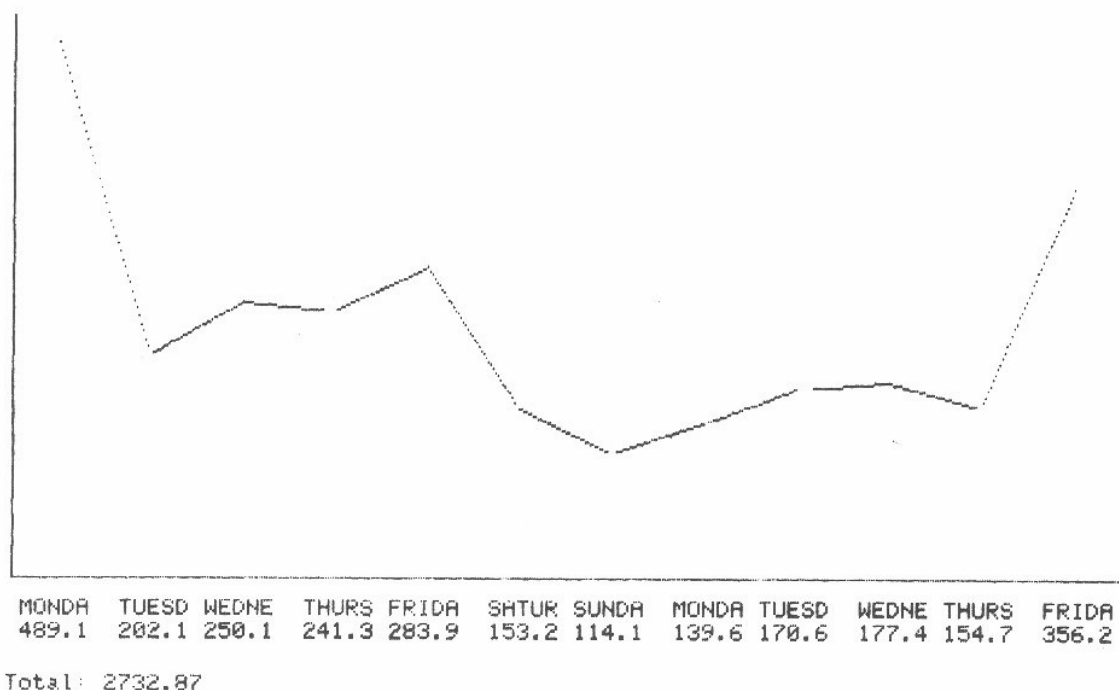


Figure 10.2b

11. If you type B or L at step 1, the screen will immediately ask you:

Height (inches)?

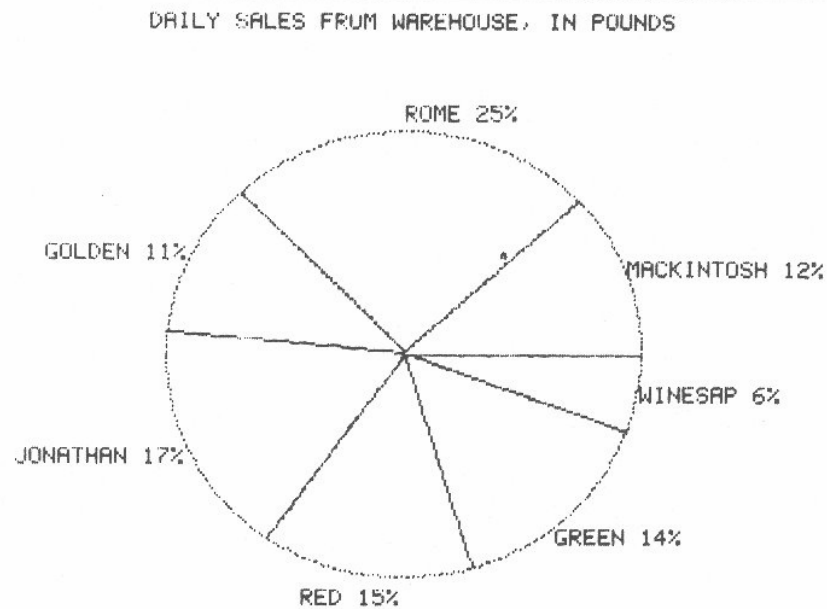
Type in how many inches you want the tallest bar to be and press ENTER. The screen will next ask you:

Width (inches)?

Type in how many inches wide you want the chart to be and press ENTER.

Note:

Keep in mind that you cannot specify a size larger than the paper you will be printing on.



Total: 2216

DAILY SALES FROM WAREHOUSE, IN POUNDS

Category	APPLES
MACKINTOSH	265.00
ROME	563.00
GOLDEN DEL	248.00
JONATHAN	369.00
RED DELIC	325.00
GREEN	321.00
WINESAP	125.00
Total	2216.00

Figure 10.3

12. When you have pressed ENTER, the files will be displayed and the screen will say:

E file name to graph?

Type in the E file name and press ENTER. The screen will ask:

By R>ow or C>olumn?

13. If you type R, the program will print a bar or line graph using the totals for the rows (categories). Those are the labels which appear

on the left-hand side of the spreadsheet. If you type C, it will print a bar or line graph using the totals of the columns or the labels which appear at the top of your spreadsheet.

14. The bar and the line graphs will start to print immediately. First the titles will appear. The first title line is centered, with those following set flush left.
15. Sometimes, if the chart is based on an extremely large set of values, the program will stop for a moment or two to compute before typing in the labels and values.

Note:

If you have a large number of entries, for example if there are 18 labels and values, GRAPH will abbreviate the labels to fit and note that the values are in 1000s, 100s, 10s, etc., if it has to abbreviate them also to fit the space available. See Fig. 10.2a for an example of this feature.

4. Examples

Figures 10.1, 10.2a, 10.2b, and 10.3 illustrate some of the variations you can achieve with GRAPH.

Figure 10.1 graphs the budget that was used as an example of EXPNS in Chap. 9, Sec. 3, step 33. How to do this graph is discussed in Sec. 4 of Chap. 9, item 8.

Figures 10.2a and 10.2b graph the expense report that was illustrated in Chap. 9, Sec. 3, step 27. The bar graph (Fig. 10.2a) plots row totals and the line graph (Fig. 10.2b) plots column totals.

The pie chart for apple sales shown in Fig. 10.3 is explained in Chap. 9, Sec. 4, item 9. Notice that we graphed the pie chart, then went to EXPNS, and without moving the paper printed the E file.

The DISK or DISK10 Program^{1,2}

1. Introduction: An Overview of What You Can Do with DISK or DISK10

DISK or DISK10 enables M-10 or Model 100 users to use other computers as disk storage devices. You can save files from RAM to diskette by pressing a function key, and you can load files from diskette into RAM by pressing a function key. You can transfer any kind of file, TEXT (.DO), BASIC (.BA), or machine code (.CO). Files are transferred both ways just as they are, with no need to do any conversions, and remain ready to run or use. You can even save an entire RAM menu in one shot, all of which can then be stored conveniently on the Disk directory under a single file name with the extension .SD (for "subdirectory"). You can also load an entire subdirectory into RAM in one step. Further, you can move single files out of a subdirectory into RAM or put a single file from RAM into a previously created subdirectory. You can kill a file in RAM or on the diskette by just pressing a function key, and you can learn the size of a file in bytes by just pressing another function key.

DISK or DISK10 is effective on a wide choice of computers. New computers are being added continuously so you should check with the PCSG office for those not discussed in this chapter. Currently the program works on the TRS-80 Models II, III, and IV as well as all other Radio Shack computers, the IBM PC and most other computers that

¹DISK is a trademark of Tandy Radio Shack; DISK10 is the Olivetti trademark for a similar version of the same program.

²*Note:* This program is now available on a snap-in ROM that goes in back of your computer. This means no RAM is consumed either to store or run the program. Plus it is always there, even if you cold-start your computer.

use MSDOS, the Apple II, IIe, and II+, and some computers that run under CP/M.

The program is amazingly easy to use, and was designed with the intuitive simplicity of the Model 100's or M-10's Main Menu concept in mind. It comes to you on diskette and cassette. You must use both to get started, but after that you will only need the diskette. To start with, you must load DISK or DISK10 from cassette onto your Model 100 or M-10. Most people will want to leave the program in their computer all the time because it frees them from needing to use the cassette player from then on. The diskette contains another DISK or DISK10 program, used by your second computer. When you copy the diskette, you copy the program also.

To use DISK or DISK10 you first connect your Model 100 or M-10 to your other computer by a cable from the RS232 ports on each machine. You will need to have a null modem adapter for most computers, although some, such as the Apple, have serial card switch settings that eliminate the need for a null modem. The cable, with the null modem adapter, is available from your Radio Shack Computer Center or your Olivetti dealer. PCSG has RS232 cables with the null modem adapter built in.

Place the diskette into the disk drive and power up. (Some computers require that you turn the power on prior to placing the diskette into the drive. The detailed instructions in Sec. 3 below will describe the correct procedure for your particular computer.)

You do not need a monitor. Your Model 100 or M-10 screen is where the file directories will be shown, and you do it all by looking at that screen. If you have a monitor connected to your other computer, some messages will appear, such as "Sending a file" or "Receiving a file"; but you do not need them to work the program.

Memory requirement: DISK or DISK10 itself takes up about 4.4K bytes. In order to run the program, you must have an additional 4.4K or so. Of course, since it provides a vast memory for you on the diskettes, with virtually instant retrieval, you do not really feel the memory consumption. (See footnote 2 on page 203 about ROM DISK.)

Here is how easy it is to use: From the Main Menu, just place the cursor on DISK.BA and press ENTER. Immediately you will be shown the RAM directory, called "Ram Files." This looks just like the Main Menu except that it does not show the resident programs like TEXT or SCHEDL. You can move the wide-bar cursor from file to file by means of the arrow keys. Along the bottom of the screen will be displayed function key labels that describe what you can do from the RAM directory.

Here is what you can do from the RAM directory:

1. You can move immediately to view the Disk directory—just press function key F1 (disk).
2. You can save any RAM file to diskette—just put the wide-bar cursor on the file name and press F3 (save).
3. You can kill any RAM file—just press function key F5 (kill) and confirm by pressing Y. You can use this convenient feature any time, even when not connected to another computer.
4. You can learn the size in bytes of any RAM file—just press function key F4 (size). You can also use *this* feature any time without being connected to another computer.
5. You can save all the files you currently have in RAM under a single file name .SD (for “subdirectory,” as mentioned earlier) on the diskette. Just press function key F6 (save all) and confirm by pressing Y. You then give the group of files a subdirectory name (this name will be on the Disk directory with the extension .SD). Pressing ENTER then saves all the RAM files to diskette as the wide-bar cursor moves rapidly and automatically from file name to file name.
6. You can save single files to an already saved subdirectory, but you have to go to the Disk directory first for this. We discuss this below.
7. You can return to the Main Menu from the RAM directory any time. Just press F8 (menu).

Function key F1 (disk) shows you the Disk directory, called “Disk Files.” This also is arranged just like the Main Menu. You can move the wide-bar cursor from file to file by means of the arrow keys. If you have not saved any files to your diskette, all the directory spaces will be blank. If you *have* saved files from RAM, however, they will appear the same as they do on the Main Menu. But in addition to the .DO, .CO, and .BA extensions, you will also have .SD extensions. These .SD file names, as we described earlier, are created when you do a save all of the files on any RAM directory menu. Each .SD file name represents a subdirectory of up to 19 separate files. This is very convenient if you are working on a particular project involving many different topics, or if different people are using the same Model 100 or M-10. All the files you have in RAM at a given time can be kept together so you can resume work on the project after a hiatus with the same RAM menu you had earlier.

Here is what you can do from the Disk directory:

1. You can load any single file (.DO, .BA, or .CO) from diskette to RAM by just placing the cursor on the desired file and pressing F2 (load).

2. You can go back to the RAM directory by pressing F1 (ram).
3. You can load an entire .SD subdirectory into RAM in one action. Place the cursor on the desired .SD file name and press F6 (load all). When you confirm by pressing Y, the entire subdirectory will replace what you previously had in RAM, so you should save all of your files in another .SD from the RAM directory before doing a load all.
4. You can go into an .SD subdirectory by placing the cursor on an .SD file and pressing F2 (load). The subdirectory's menu will be shown, also arranged like the Main Menu. You will be reminded that you are using an .SD subdirectory by a "USING:XXXXXX.SD" prompt near the bottom of the screen. (In place of the X's shown here, of course, the file name will appear.) From a subdirectory, you can do the following: (a) Load a single file from the subdirectory by pressing F2 (load). (b) Load the entire subdirectory by pressing F6 (load all), as noted above for the Disk directory. (c) Kill any file in the subdirectory by pressing F5 (kill) [you can also learn the size of a file by pressing F4 (size)]. (d) Save a single file from RAM into the subdirectory. To do this you first go to RAM by pressing F1 (disk). You will then be shown the RAM directory, but with the prompt "USING:XXXXXX.SD" (again, in place of the X's here, the file name will appear). Press F3 (save) to save a file in the .SD file. Pressing F1 once more will send you to the Disk directory, so that you are no longer using the subdirectory. (e) Naturally you can go to the Main Menu by pressing F8 (menu).
5. You can kill a file, or a .SD subdirectory, by pressing F5 (kill). You must confirm afterwards by pressing Y.
6. You can learn the size of a file by pressing F4 (size).
7. You can return to the Main Menu by pressing F8 (menu).

DISK or DISK10 gives you enormous storage capabilities. Freedom from the slow and often unreliable cassette player makes your Model 100 or M-10 a more truly functional and useful computer. Its full error checking feature means that programs are ready to run and text files called up later will be exactly as you prepared them. (This error checking is accomplished by the program's checking each block of data that is transferred. If any character is not correct, that block is retransmitted automatically until it is verified as being correct. The speed of transmission is so rapid that users never notice if a line has to be retransmitted.)

Files are transferred at the highest baud rate feasible for the second computer being used. Most transferrals are carried out at 19,200 baud

(about 2000 characters/second). Compared with the 1200 baud rate of your cassette recorder, this is virtually instantaneous.

Some Model 100 or M-10 owners purchase inexpensive second computers (used Apples abound at low prices) to serve as their disk drive when using DISK or DISK10. Since you only need one disk drive, and you do not need a monitor, such an approach can be very affordable.

Another exciting feature of DISK or DISK10 is what is known as "File Transfer Utility." You can convert the text file of another computer to load into your Model 100 or M-10, or convert a Model 100 or M-10 text file to run on another computer. You simply press ESC on the other computer, and you will be shown the File Transfer Utility menu on the other computer's screen. Screen instructions are completely self-explanatory. Complete instructions for using this feature are given in Sec. 6 of this chapter. Section 2 following gives step-by-step instructions for loading the program, and then Sec. 3 explains how to use DISK or DISK10 in a "tutorial" fashion. For many people, the tutorial instructions may not really be needed, but you will find they are complete, and certainly useful for reference purposes.

2. Loading

- A. Place the cassette labeled DISK or DISK10 into your cassette player. Make sure the player and computer are connected properly. See your Model 100 or M-10 manual about this.
- B. Rewind the tape completely. It may be rewound already, but make certain. Press PLAY into its locked position.
- C. There are two items that should be loaded into your Model 100 or M-10 from cassette in order to run the DISK or DISK10 program. They are easy to load. One is a BASIC program called DISK.BA. The second is a machine code file called DISK.CO.
- D. With the cassette player set to run as described, turn on your Model 100 or M-10. You will see its Main Menu. With the cursor on BASIC, press ENTER. You will immediately be sent to BASIC, and the screen will say:

Ok

- E. Type in the letter C. The screen will say:

C

Press F2. The screen will say:

CLoad "

- F. Type in DISK and press ENTER. Automatically the cassette will start running, and while it is running the screen will say:

Found:DISK

- G. When the cassette player stops, the screen will say

Ok

- H. Press F3. The screen will say:

Save "

Then type in DISK and press ENTER. The screen will say

Ok

Now, we will load the machine code file DISK.CO as follows. Recorded on the DISK or DISK10 cassette is a BASIC program called LOADER. This program will load and save the DISK.CO file for you. Follow these steps:

- A. Type in C and press F2 as before. The screen will say:

CLoad "

- B. Type in LOADER and press ENTER.

- C. Automatically the cassette player will start running, and while it is running the screen will say:

Found:LOADER

The player will stop, and the screen will say

Ok

- D. Press F4 (run). The player will start to spin, and while it is spinning the screen will say:

PCSG DISK LOADER
LOADING DISK FROM TAPE

E. When the tape stops, the screen will say:

Ok

DISK or DISK10 will have been loaded and saved automatically.
Press F8 to return to the Main Menu.

Note:

Notice the two new entries, DISK.BA and DISK.CO. In Sec. 3 we give step-by-step instructions on how to use them.

F. If you have an IBM PC or an IBM clone, or a TRS-80 computer, you must load the program COMSET.BA, which is also on the cassette tape. You will only need to use it once to set your program, and then you can delete it from your Model 100 or M-10. To load it, you must be in BASIC as explained earlier. Type in the letter C, then press F2. The screen will say:

CLoad "

Type in COMSET and press ENTER. The cassette recorder will start to run, and after a while the screen will say

Found:COMSET

When it is finished loading, the screen will say

Ok

Press F3. The screen will say

Save "

Type in COMSET and press ENTER. The screen will say

Ok

Press F8 and you will return to the Main Menu. Put the wide-bar cursor on COMSET and press ENTER. Press F1. Now you may kill the COMSET program. (Wait until you get into the DISK or DISK10 program, where you can kill it by pressing a function key.)

3. Getting Started

We will go through a step-by-step sequence of how to use DISK or DISK10. But before using it, you must make copies of the DISK or

DISK10 source diskette. (You cannot just use a blank diskette since the program must be on the diskettes you use as well as in your Model 100 or M-10.)

The process of making diskette copies is called "making backups." You can refer to your computer's operating manual for how to make them, but we have included instructions for a number of the more popular computer models on the following pages.

Diskette Copying Sequence for Apple, Apple IIe, and Apple II+ Computers

- A. Insert the Apple system master disk into drive 1. (If you have only one drive, review the instructions in your Apple manual for copying a diskette.)
- B. Turn on the power. The screen will say (the message will vary according to the type of DOS or hardware you are using):

```
DOS VERSION 3.3           08/25/80
APPLE II STANDARD        SYSTEM MASTER
(LOADING APPLESOFT IN LANGUAGE CARD)
>X BLINKING CURSOR
```

Instead of a >, there might be a bracket symbol.

- C. Type in Run CopyA if you are using your Apple II with Applesoft installed; if you are using it without Applesoft, type in Run Copy.
- D. Press RETURN.
- E. The screen will say:

```
APPLE DISKETTE DUPLICATION PROGRAM
ORIGINAL SLOT:  DEFAULT=6
```

- F. Remove the Apple system master diskette from drive 1.
- G. Insert the PCSG DISK or DISK10 source diskette into drive 1.
- H. Insert a blank diskette into drive 2.
- I. Press RETURN four times. The screen will say (although the numbers will change):

```
ORIGINAL SLOT: 6
DRIVE: 1
DUPLICATE SLOT: 6
DRIVE: 2
--PRESS 'RETURN' KEY TO BEGIN COPY--
```

- J. Press RETURN again to begin.
- K. Next the screen will say:

READING
WRITING
FORMATTING

The words will be highlighted one at a time on the screen for emphasis as each step in the sequence is being carried out, the highlighting sequence itself being repeated until the copying is complete.

- L. When the copying is finished, the screen will say:

DO YOU WISH TO MAKE ANOTHER COPY?

- M. If you do, remove the duplicate diskette just copied and insert a new blank one.
- N. Type in Y for "yes" and press RETURN. The screen will say:

---PRESS 'RETURN' KEY TO BEGIN COPY---

- O. Press RETURN. The process will then be repeated from step K.
- P. Be sure to label your copied diskette as DISK or DISK10 so that you do not confuse it with a blank diskette or ones you are using for other purposes.

Diskette Copying Sequence for TRS-80 Model IV Computer

- A. Turn on your Model IV.
- B. Insert a blank diskette into the top drive (drive 1). Close the door.
- C. Insert the TRSDOS system diskette into the bottom drive (drive 0). Press RESET.
- D. Type in the current date MM/DD/YY (for "Month/Day/Year") and press ENTER. The screen will say:

TRSDOS Ready

- E. Type in
Format
and press ENTER.

F. The screen will say:

```
Format 6.1.0 - Copyright 1983
Which drive is to be used?
```

(Other license information will also be shown in the space above.)
Type in 1 and press ENTER.

G. The following questions will then appear on the screen, one by one:

```
Master password?
Single or Double density (S,D)?
Number of Cylinders?
```

H. Just press ENTER after each question appears.

I. The screen will say:

```
Formatting Cylinder 1*
```

Then it will say:

```
Verifying Cylinder 1*
```

(* Numbers flash automatically up to 39.) Then it will say:

```
Directory will be placed on cylinder 20
```

J. (Initializing SYSTEM information follows.) The screen will then say:

```
Formatting complete
TRSDOS ready
```

K. Type in

BACKUP

and press ENTER. The screen will say:

```
Backup
6.1.0 - Copyright 1983
Source drive number?
```

L. Insert the DISK or DISK10 source diskette into the bottom drive (drive 0). Close the door.

M. Type in 0 (zero) and press ENTER.

N. The screen will say:

```
Destination drive number?
```

O. Type in 1 and press ENTER.

P. The screen will say:

```
Destination disk ID is different:Name=Datadisk
Date=MM/DD/YY
Are you sure you want to backup to it (Y/N)?
```

(The current date you typed in earlier will appear on the second line.)

Q. Make sure that the blank diskette is in drive 1 (on the top), then type in Y and press ENTER.

R. Now the screen will repeat various messages many times. When it says:

```
Backup complete
TRSDOS ready
```

remove the copied diskette from the computer.

S. Be sure to label the copied diskette DISK or DISK10 so as not to confuse it with a blank one or ones you are using for other purposes. We recommend that, for convenience, you copy several DISK or DISK10 diskettes at one time.

Diskette Copying Sequence for IBM PC

Note:

Since MS DOS could not be copied onto your DISK or DISK10 source diskette, you must copy it onto a "working master." You can then use that working master to make copies. Follow the procedure given here to make a working master, or if you already have made one, go on to the section titled "Making copies."

Making a working master

- A. Insert your DOS diskette into drive A: (which is on the left). Turn on your computer, or if it is on already, press CTRL ALT and DEL simultaneously.
- B. Insert a blank diskette into drive B: (which is on the right). Press RETURN several times to get to the A> prompt.

C. Type in

FORMAT B:/S

and press ENTER.

Note:

Make sure to put in spaces wherever they are shown here.

D. The screen will say:

Insert new diskette for drive B:
and press any key when ready.

E. With the new diskette (already inserted in step B above) in drive B:, press any key to format it. The system's DOS will be transferred also.

F. The screen will say:

Formatting...

Then it will say:

Format complete
System transferred
Format another (Y/N)?

G. Other disk space usage information will be shown on the screen. Type in N for "no." The screen will say:

A>

H. Remove the DOS diskette. Insert the DISK or DISK10 source diskette into drive A:. Type in

COPY A:.* B:

and press ENTER.

I. The screen will say

TERMINAL.D
AUTOEXEC.BAT
DISKPL.EXE
3 file(s) copied
A>

J. Remove the diskettes. Be sure to label the disk from drive B: (on the right), as "DISK (or DISK10) working master." This is the

diskette you will use when you make copies. Put a "write protect" sticker on it.

Making copies

Now, follow these instructions to make copies of your working master.

- A. Insert the system's diskette (DOS) into drive A: (which is on the left). Close the door.
- B. Turn on the IBM PC (or reset it by pressing CTRL ALT and DEL simultaneously). If the screen says

A>

then go on directly to step E. However, the screen may say:

```
Current date is Sun 01-01-1900
Enter new date:
```

- C. If it does, enter the new date if you wish; otherwise just press ENTER. Do the same for the time of day.
- D. The screen will then say:

A>

- E. Type in

DISKCOPY A: B:

(keeping the exact spacing shown here) and press ENTER.

- F. The screen will say (the message can vary depending on the DOS version):

```
DISKCOPY Version X.X
Insert Source diskette into drive A:
Insert Target diskette into drive B:
Strike any key when ready
```

- G. Insert your working master diskette (with DOS, as above) into drive A: (which is on the left) and close the door.
- H. Insert a blank diskette into drive B: (which is on the right) and close the door.
- I. Press any key to begin the copying procedure.
- J. The screen will give you various messages, like

```
Copying 9 sectors per track
Formatting while copying
```

etc.

K. When the copying is finished, the screen will say:

Copy another (Y/N)?

If you want to make another copy, type in Y, and the sequence will repeat from step F above. Be sure to label the copied diskette DISK or DISK10, so you will not confuse it with other diskettes.

4. Tutorial on Using DISK or DISK10

Now we give the procedures for actually using the program.

Step 1. Connect your Model 100 or M-10 to a second computer by means of a dual RS232 (DB-25) cable with a null modem adapter (a plug that fits on the end of the cable). If you are using an Apple computer, you will need to install an Apple super serial card. The serial card should go into slot 3, and it has switch settings that create the null modem effect, so you will not need a null modem adapter. For your information, the switch settings are these:

- Switch block 1: 5 & 6 on, all others off
- Switch block 2: 1 & 4 on, all others off

At this time connect the cable between the RS232 outlets on your M-10 or Model 100 and the other computer.

Step 2. You do not need to have your monitor connected to the other computer. The DISK or DISK10 program is worked from your Model 100 or M-10 screen. But if you do have a monitor connected, you will observe some screen messages when files are being transmitted or saved and when the program is awaiting a command.

Step 3. Inserting the diskette. Computers are different. Make sure that you have made a copy of the DISK or DISK10 source diskette, as explained earlier.

For the Apple II: Place the diskette labeled DISK or DISK10 in the disk drive and turn the power on. If you have two drives, use drive 1. For the TRS-80 Model 4: Insert the DISK or DISK10 diskette into the bottom drive (drive 0) and turn the power on. Or insert the DISK or DISK10 diskette into the bottom drive (drive 0) and press RESET. Enter today's date and press ENTER. For the IBM PC: Refer to the diskette copying sequence described above to make copies of the DISK or DISK10 source diskette, if necessary. Once you have the copies, simply insert one and turn the power on. (If the power is already on,

press CTRL ALT and DEL simultaneously after inserting the diskette, or type in DISKPL and press ENTER.)

Step 4. Turn on your Model 100 or M-10, place the cursor on DISK.BA, and press ENTER.

Step 5. The screen will show the RAM directory as follows:

```
Ram Files (8439)   DISK V1.0 (C)PCSG
GAME.DO  DON.DO   WSPEC.DO  DISK.BA
TUTOR.BA WRITE.BA  DISK.CO   CORTNS.CO
-.-      -.-      -.-      -.-
-.-      -.-      -.-      -.-
-.-      -.-      -.-      -.-
```

```
Disk .... Save Size Kill SvAll .... Menu
1  2  3  4  5  6  7  8
```

Notice that this directory looks like the Main Menu, except it does not show resident programs like TEXT or SCHEDL.

Step 6. We will go through the process of saving a single RAM file to diskette, and then through the process of saving all the RAM files as a group. The explanation will be most effective if you have some files in RAM on which to practice. You might want to load files from cassette or create some if you have a blank menu.

Before we start saving, look at the Disk directory. Press F1 (disk). The disk drive will start spinning, then the directory will appear. Notice that all the entries are blank:

```
Disk Files          DISK V1.0 (C)PCSG
-.-                -.-
-.-                -.-
-.-                -.-
-.-                -.-
-.-                -.-
```

```
Ram Load .... Size Kill LdAll .... Menu
1  2  3  4  5  6  7  8
```

Also notice that when you are looking at the Disk directory, the F1 label says "Ram," where on the RAM directory it said "Disk." Press F1 to take you back to the RAM directory.

Step 7. Now we will go through the process of saving from RAM to diskette. Move the wide-bar cursor with the arrow keys to a file you wish to save. You can save any kind of file: BASIC (.BA), TEXT (.DO),

or machine code (.CO). For our example, we will put the cursor on WRITE.BA (the SCRIPSIT 100 or PRNT10 program). Press F3 (save). You will hear the diskette drive start to whirl and the red light will go on. On the Model 100 or M-10 screen, the labels will disappear and the message "Saving WRITE.BA" will appear for just a moment. (Of course the message will read differently for each different program you are saving.)

Step 8. When the save is complete, the labels at the bottom of the screen will return.

Step 9. Now press F1 (disk) to look at the Disk directory:

```

Disk Files          DISK V1.0 (C)PCSG
WRITE.BA  --      --      --
--      --      --      --
--      --      --      --
--      --      --      --
--      --      --      --

```

```

Ram Load .... Size Kill LdAll .... Menu
1  2  3  4  5  6  7  8

```

Notice that the file we saved is on this directory. Press F1 again to return to the RAM directory.

Step 10. Now we will save all the RAM files to diskette, as a group. Press F6 (save all).

Step 11. The labels will disappear and a new message will appear on the bottom of the screen:

```

Ram Files  (8439)  DISK V1.0 (C)PCSG
GAME.DO    DON.DO  WSPEC.DO  DISK.BA
TUTOR.BA   WRITE.BA DISK.CO  CORTNS.CO
--      --      --      --
--      --      --      --
--      --      --      --

```

Save all files Are you sure?

Type in Y for "yes."

Step 12. Now another message will appear along the bottom of the screen:

```
Ram Files (8439)   DISK V1.0 (C)PCSG
GAME.DO  DON.DO   WSPEC.DO  DISK.BA
TUTOR.BA WRITE.BA  DISK.CO   CORTNS.CO
-.-      -.-      -.-      -.-
-.-      -.-      -.-      -.-
-.-      -.-      -.-      -.-
```

Enter .SD name:

Step 13. Type in a file name. For illustration purposes, we will type in EXAMPL. You can type it in lower- or uppercase, whichever you prefer. Press ENTER.

Step 14. The wide-bar cursor will move automatically from file name to file name and stop at the last one. If you have a monitor connected, when the saving is complete the screen will say

Awaiting Command

At this point you can move the cursor with the arrow keys. But while the saving is in progress, you will notice, those keys will not function.

Step 15. Now press F1 to look at the DISK or DISK10 directory. You will see:

```
Disk Files          DISK V1.0 (C)PCSG
WRITE.BA  EXAMPL.SD -.-      -.-
-.-      -.-      -.-      -.-
-.-      -.-      -.-      -.-
-.-      -.-      -.-      -.-
-.-      -.-      -.-      -.-
```

```
Ram Load .... Size Kill LdAll .... Menu
1  2  3  4  5  6  7  8
```

You can see that an .SD file was created, titled here EXAMPL.SD. In a moment we will take a look to see that all the files in RAM were saved, and we will explore what we can do with the subdirectory.

Step 16. Now press F1 to go back to the RAM directory to study two other actions that can be taken from it.

Step 17. In the RAM directory place the cursor on any file—for example, WRITE.BA—and press F4 (size). The screen will immediately display the size of the file in bytes in the lower left-hand corner:

```
Ram Files (8439)   DISK V1.0 (C)PCSG
  GAME.DO  DON.DO  WSPEC.DO  DISK.BA
  TUTOR.BA WRITE.BA DISK.CO  CORTNS.CO
  --      --      --      --
  --      --      --      --
  --      --      --      --
```

Size = 3237

This useful feature works without your Model 100 or M-10 being connected to another computer.

Step 18. With the cursor on the same file, press F5 (kill). The screen now will say:

```
Ram Files (8439)   DISK V1.0 (C)PCSG
  GAME.DO  DON.DO  WSPEC.DO  DISK.BA
  TUTOR.BA WRITE.BA DISK.CO  CORTNS.CO
  --      --      --      --
  --      --      --      --
  --      --      --      --
```

Kill WRITE.BA Are you sure?

Type in Y. (If you type in N or any other key, you will abort or cancel the kill.) The moment you type in Y, the file will be killed from RAM (and the Main Menu), and the file name will disappear from the RAM directory.

At this time, so we can show you how to load from diskette, kill, one by one, all the files you have on the RAM directory except for DISK.BA and DISK.CO.

Step 19. Here is a summary of what can be done from the RAM directory:

- F1 (disk): Go to the Disk directory.
- F3 (save): Save any file to Disk.
- F4 (size): Learn the size in bytes of any file in RAM.
- F5 (kill): Kill any file in RAM. You must confirm by typing in a Y.
- F6 (save all): Save all files to Disk in a subdirectory. You must confirm by typing in a Y, and name the .SD file with a file name made up of no more than six letters.
- F8 (menu): Go back to the Main Menu.

Step 20. Press F8 to go back to the Main Menu. Later we will be illustrating how to add a single file from RAM into an existing subdirectory on the diskette. So we will be able to do that, go into TEXT now, and start a new file called TESTA. Type a few lines of text of your choosing, and then press F8 to return to the Main Menu. As we did earlier, place the cursor on DISK.BA and press ENTER.

Step 21. You will be shown the Ram directory. Press F1 (disk).

Step 22. The Disk directory will appear. If you are using a monitor, the monitor screen will say "Sending Directory" as it comes across.

Step 23. Note that the Disk directory shows the single file we saved as well as the subdirectory name:

```

Disk Files          DISK V1.0 (C)PCSG
WRITE.BA  EXAMPL.SD  --  --
--  --  --  --
--  --  --  --
--  --  --  --
--  --  --  --

Ram Load .... Size Kill LdAll .... Menu
1  2  3  4  5  6  7  8

```

Step 24. Now we will load a single file from the diskette to RAM. You will recall that we killed the WRITE file from RAM earlier back, at step 18. Let us now load this file from the diskette back to RAM.

Step 25. Place the cursor on the file WRITE.BA and press F2 (load).

Step 26. The function key labels at the bottom of the screen will disappear and the message "Loading WRITE.BA" will appear:

```

Disk Files          DISK V1.0 (C)PCSG
WRITE.BA  EXAMPL.SD  --  --
--  --  --  --
--  --  --  --
--  --  --  --
--  --  --  --

Loading WRITE.BA

```

Step 27. If you are using a monitor, the monitor message "Sending a File" will appear. On your Model 100 or M-10, the function key labels will reappear on the screen.

Step 28. Using F1, you can go back to the RAM directory and see that the file we just loaded is there, or using F8, you can go to the Main Menu to check it out. In either event, after you have checked, return to the Disk directory.

Step 29. Just as from the RAM directory, so from the Disk directory you can find out the size of a file (but only of a single file). If you put the cursor on the subdirectory file (.SD) and press F4 (size); you will get the message:

M. 100: FILE IS .SD

You cannot size an .SD file directly; you must first press F2 to load the subdirectory, then size each file separately. Place the cursor on a single file on the DISK or DISK10 directory and press F4. In the lower left-hand corner of the screen will appear

Size=3237

(or whatever the size is of the file you are sizing).

Step 30. We will now kill a single file from the Disk directory—WRITE.BA. We can also kill the entire subdirectory, but will do this later. Place the cursor on the name of a single file and press F5 (kill). The labels will disappear from the bottom of the screen, to be replaced by

Kill WRITE.BA Are you sure?

Type in Y for “yes.” (If you change your mind, type in N for “no,” or any other key, instead of Y, and the file will not be killed.) In a moment the file name will disappear from the Disk directory.

Step 31. Now we will examine the subdirectory and what we can do with it. Place the cursor on the subdirectory .SD file name and press F2 (load). You will now be shown the subdirectory menu:

```

Disk Files          DISK V1.0 (C)PCSG
GAME.DO   DON.DO   WSPEC.DO  DISK.BA
TUTOR.BA  WRITE.BA DISK.CO   CORTNS.CO
--
--
--
Using: EXAMPL.SD
Ram Load .... Size Kill LdAll .... Menu
1   2   3   4   5   6   7   8

```

Note the message on the screen,

```
Using: EXAMPL.SD
```

Step 32. Remember, these .SD files are what we saved earlier when we did the save all from RAM in steps 10 through 14 by means of F6. They are now grouped together and saved as a single subdirectory.

Step 33. To load a file to RAM from a subdirectory, place the cursor on one of the files—for example WSPEC.DO—and press F2 (load). The function key labels will disappear, and the screen will look like this:

```

Disk Files          DISK V1.0 (C)PCSG
GAME.DO   DON.DO   WSPEC.DO  DISK.BA
TUTOR.BA  WRITE.BA DISK.CO   CORTNS.CO
--
--
--
Using: EXAMPL.SD
Loading WSPEC.DO

```

Step 34. When loading is complete, the function key labels will reappear. That file saved is now in your RAM (and listed on your Main Menu). You can check that now by pressing F8, or wait until the next step where we will view the RAM directory for another reason.

Step 35. Just as from the RAM directory, so from the Disk directory you can learn the size of any file in the subdirectory. Just place the cursor on the file in the subdirectory you want to know about. Press F4 (size). The function key labels will disappear, and the size will be shown in the lower left-hand corner of the screen.

Step 36. F5 (kill) can delete files from the subdirectory menu just like it can from the RAM directory and the Disk directory. Place

the cursor on the file in the subdirectory you want killed and press F5. Answer Y to the question at the bottom of the screen:

Kill FILE.XX Are you sure?

(In place of the X's shown here will appear .CO, .DO, or .BA.) After a moment the subdirectory menu will return to the screen and the name of the file you killed will be gone.

Step 37. Now we will add a single file to the subdirectory from RAM. Remember the TESTA file we created earlier back in step 20? We will add this to our subdirectory, EXAMPL.SD.

Step 38. Press F1 (Ram). The RAM directory will appear, but notice that we are still using the subdirectory:

```
Ram Files          DISK V1.0 (C)PCSG
TESTA.DO  WSPEC.DO DISK.BA  WRITE.BA
DISK.CO   --      --      --
--        --      --      --
--        --      --      --
--        --      --      --
Using: EXAMPL.SD
Disk .... Save Size Kill SvAll .... Menu
1  2  3  4  5  6  7  8
```

Notice that the single file WSPEC.DO we loaded from the .SD is now in RAM, along with the single file WRITE.BA we loaded from the DISK or DISK10 directory.

Step 39. Now put the cursor on TESTA.DO and press F3 (save). The labels will disappear from the bottom of the screen, to be replaced by a message:

```
Ram Files          DISK V1.0 (C)PCSG
TESTA.DO  WSPEC.DO DISK.BA  WRITE.BA
DISK.CO   --      --      --
--        --      --      --
--        --      --      --
--        --      --      --
Using: EXAMPL.SD
Saving TESTA.DO
```

Step 40. Press F1 and you will be sent all the way back to the Disk directory, now completely out of the subdirectory.

Step 41. Next we illustrate loading an entire subdirectory in one step from either the main Disk directory or the subdirectory menu.

Remember: Whenever you do a load all by pressing F6, you completely replace all the files in RAM with those in the subdirectory you are loading. If you want to keep any of those RAM files, you must create a subdirectory of them, as described above in steps 10 through 15.

Step 42. From the Disk directory place the cursor on the .SD file name and press F6 (load all). The screen will say:

```

Disk Files          DISK V1.0 (C)PCSG
TESTA.DO   EXAMPL.SD  --   --
--         --         --   --
--         --         --   --
--         --         --   --
--         --         --   --

```

Load all files Are you sure?

Type in Y for "yes."

Step 43. All the files in that subdirectory will then be loaded into RAM. The drive will run on and off as each file is being transmitted.

Step 44. You can do this same procedure from a subdirectory menu. To practice, put the cursor on the .SD file name. Press F2 (load). You will see the subdirectory menu and the message "Using: EXAMPL.SD" will be at the bottom of the screen. Press F6 (load all). The screen will say:

Load all files Are you sure?

Type in Y for "yes." The cursor will move automatically from file name to file name until the load all is completed.

Step 45. Back in step 30 we talked about using F5 to kill a file. We killed a single file then, and now we will kill an entire subdirectory. Press F1 to take you back to the Disk directory. Put the cursor on EXAMPL.SD and press F5. The screen will say:

```

Disk Files          DISK V1.0 (C)PCSG
TESTA.DO   EXAMPL.SD  --   --
--         --         --   --
--         --         --   --
--         --         --   --
--         --         --   --

```

Kill EXAMPL.SD Are you sure?

Type in Y. The subdirectory file name will disappear when the kill is complete.

5. Summary of Functions

Here is a summary of what can be done from the Disk directory:

- F1 (Ram): Go back to the RAM directory.
- F8 (Menu): Go to the Main Menu.
- F2 (load): Load any single file to RAM. When the cursor is on an .SD file, this key also allows you to view the subdirectory menu.
- F4 (size): Learn the size of a single file.
- F5 (kill): Kill any single file or an entire subdirectory. You must confirm by typing in a Y.
- F6 (load all): Load an entire subdirectory into RAM—but remember, it replaces all the files in RAM with those being loaded. Be sure to save any RAM files you still want ahead of time.

Here is a summary of what you can do from any subdirectory menu:

- F1 (Ram): Access the RAM directory while still using the subdirectory, so you can save any file (by pressing F3) from RAM to the subdirectory.
- F2 (load): Load a single file to RAM.
- F6 (load all): Load the entire subdirectory to RAM, replacing all the original RAM files. Remember to save any you might still want ahead of time.
- F4 (size): Learn the size of any file in the subdirectory.
- F5 (kill): Kill any file in the subdirectory. You must confirm by typing in a Y.

On page 220, step 19, is a summary of what you can do from the RAM directory.

Using COMSET.BA

DISK or DISK10 operates at different baud rates for different computers. If you have an Apple II, II+, or IIe with a super serial card as your second computer, you already have your baud rate set, at 19,200 baud.

However, if you are using an IBM PC (or PC clone), or any of several computer disk systems, you will need to use COMSET.BA, from the DISK or DISK10 tape, to reset your DISK or DISK10 baud rate. Here

is a list of the baud rates for the computers currently supported by DISK or DISK10:

- Apple II, IIe, II+ —19,200 baud
- TRS-80 computers—9600 baud
- IBM PC (and clones)—9600 baud

Now we give the procedures for using COMSET.BA:

1. Connect your cassette recorder to your computer, as explained earlier. From the Main Menu, place the cursor on BASIC and press ENTER. The screen will say

Ok

2. Type in C and press F2. The screen will say:

CLoad "

3. Type in COMSET and press ENTER.
4. The player will start to spin. When the COMSET program has been found, the screen will say:

Found: COMSET

Then it will say:

Ok

Note:

If you use two or more different computers, requiring different baud rates, you need to save COMSET for use later. Press F3, type in COMSET, and press ENTER.

5. Press F8 to return to the Main Menu. This is important!
6. Press ENTER for BASIC. Then press F4 (run).

When you run COMSET, the screen will give you various options to choose from for the DISK COM: parameters. You need to be compatible with your second computer.

By pressing function key F1 for the IBM PC or TRS-80 computer, F2 to enter your own parameters, or F3 for the Apple, you automatically change the DISK COM: parameters. Pressing F8 will cause you to exit

from COMSET without changing the DISK COM: parameters. By pressing one of these function keys, you will be returned to the Main Menu. Then you can run DISK or DISK10 as described earlier.

Cueing

As you become more proficient in the use of DISK or DISK10, you will begin to think out your next steps more quickly than your two computers can respond. To solve this problem, the program allows you to "cue" (or chain) up to 16 different instructions. Simply proceed to key in saves, loads, arrow keys, and kills, along with the Y's needed for their confirmation. DISK or DISK10 will remember those instructions and execute them automatically in the order in which you cued them.

You will need to be somewhat familiar with using DISK or DISK10, and must have a good concept of what you want to do before attempting cueing. But cueing would make sense, for example, if you were performing the following operation: saving a single file from RAM into a subdirectory, killing the file in RAM, then opening a second subdirectory and taking several files out of that subdirectory into RAM. You will find many exotic combinations of commands where cueing is very handy.

A word of caution about cueing, however: Remember that when you kill a file by pressing F5, then confirm by typing in a Y, the command causes the file to disappear from that directory. Thus all the other entries after the killed file will "shift over" one place to the left on the directory. Therefore, make sure you know where all the files will be before cueing kills. And keep in mind that kills are permanent—unless you save the file you are killing to another directory ahead of time, it will not be preserved anywhere else.

SHIFT-BREAK

On DISK or DISK10, SHIFT-BREAK (holding down the SHIFT key and pressing PAUSE/BREAK) has been programmed to perform differently than it does with other programs. Instead of causing the program to break and take you to an "Ok" prompt as in BASIC, for example, in DISK or DISK10 it allows you to return quickly to your RAM directory. This is an important and useful function because sometimes you may ask the program to do the impossible. Here is an example.

Suppose you were in the RAM directory and pressed F1 (disk) for the

Disk directory, then discovered your Model 100 or M-10 was not connected to your second computer, or that you had the diskette in upside-down. DISK or DISK10 would continue to look for the Disk directory, but being unable to find it would appear to be “hung-up.” The program would continue to look for the directory for a full 30 seconds, then would automatically return to the RAM directory. But 30 seconds is a long time when using a computer, and that is when SHIFT-BREAK would come in handy. By simply holding down SHIFT and pressing BREAK simultaneously, DISK or DISK10 would immediately quit looking and take you back to the RAM menu. And there are other instances where you could use SHIFT-BREAK. But remember: Any time you are in a holding pattern because of any irregularity, use SHIFT-BREAK, and *not the RESET button* on the back of your computer. RESET should *never* be used with DISK or DISK10.

6. File Transfer Utility

DISK or DISK10 stores your files in a format different than the one your second computer uses. But you can still easily transfer files from your DISK or DISK10 diskette and use them on your other computer (or vice versa) by using the file transfer feature of the program. There are several reasons why you might want to do this. One is if you have a text file that you have prepared with your second computer's text editor, and wish to work with it on your Model 100 or M-10. Or you might have a file in your Model 100 or M-10 that you wish to run through a spelling checker program on your other computer, then transfer back to your Model 100 or M-10.

Here is how to do it:

With the program inserted in both computers, press the ESC (escape) key on the second computer's keyboard. The screen will say:

```

      File Transfer Utility
1 - Transfer IBM file to DISK file
2 - Transfer DISK file to IBM file
3 - Return to DISK
4 - Exit from DISK

```

Which is your choice?

Note:

The screen message will vary slightly according to the type of second computer you are using—Apple, TRS-80, etc. The program works the same way for them all, though. In our explanation below, we use an IBM machine as an example. But the instructions apply to other computer models as well.

Here is a brief description of what each option you are offered does (we will explain how to implement them below):

1. Transfer IBM file to DISK file: This allows you to transfer a file from your other computer to your DISK or DISK10 diskette, where you can load it into your Model 100 or M-10.
2. Transfer DISK file to IBM file: This allows you to transfer a file from the DISK or DISK10 diskette onto another diskette for use with your other computer, where you can check the spelling or whatever else you want to do with the file.
3. Return to DISK: This allows you to quit the file transfer utility and return to DISK or DISK10.
4. Exit from DISK: This allows you to return to the operating system of your other computer.

To select an option, simply type in 1, 2, 3, or 4. The following are detailed explanations of how to implement each option once you have chosen it.

1. Transfer IBM file to DISK File

- A. To select this option, type in 1. Then the screen will say:

```
We need to select an IBM file.
Lets read the file directory.
What drive will we read from? (A/B...):
```

Note:

The final line will vary—(1/2) for Apple, (0/1) for TRS-80, etc.

- B. Type in the letter (or number) of the drive where the IBM files are located.
- C. Immediately, the screen will show the IBM directory:

```
A - XXXXXX
B - XXXXXX
C - XXXXXX
```

Space bar for more files, Escape
key for menu, Letter to select a file

The file names will appear in place of the X's given above. If you need to see more files, press the space bar. ESC will return you to the file transfer menu.

- D. Type in the letter next to the name of the file that you wish to transfer. The name will appear momentarily at the bottom of the screen, then the screen will say:

Select the DISK directory that
will receive the transferred file.

Ø - Main directory
A - XXXXXX.SD B - XXXXXX.SD
C - XXXXXX.SD

Which is your choice?

- E. In other words, you must select where on the DISK or DISK10 diskette the transferred file will be placed. Type in 0 (zero) for the main directory, or the appropriate letter for one of the .SD sub-directories. (In place of the X's shown above will appear the file names, if there are any. If you have no subdirectories, none will be shown. You must then type in 0 for the main directory.)
- F. As soon as you have selected the directory that will receive the transferred file, the screen will say:

We are creating an M100 file.
Type the M100 file name

You must type in a file name of up to six letters, and press ENTER. The file will then be transferred to the DISK or DISK10 diskette, where you can load it into your Model 100 or M-10, as explained earlier. As it is being transferred, the disk drives will whirl, one at a time. When the transfer is complete, you will be returned to the file transfer menu.

2. Transfer DISK file to IBM file

- A. To transfer a DISK or DISK10 file to your other computer, type in 2. The screen will say:

Select the DISK directory that
contains the M100 file to transfer

Ø - Main directory
A - XXXXXX.SD B - XXXXXX.SD
C - XXXXXX.SD

Which is your choice?

- B. Type in the letter next to the directory that contains the file you wish to transfer (in place of the X's shown above will appear the file names, if there are any). 0 (zero) selects the main directory. If you have no .SD files, you must select 0 for the main directory.
- C. Then the screen will say:

```
Select a DISK file to
transfer to the IBM.
```

```
A - XXXXXX.DO      B - XXXXXX.DO
C - XXXXXX.DO      D - XXXXXX.DO
```

```
Which is your choice?
```

- D. Type in the letter next to the file name that you wish to transfer (in place of the X's shown above will appear the .SD file names, if there are any).

Note:

Only document files (.DO files) will be displayed on the screen. If no files are listed, then the DISK or DISK10 diskette contains no .DO files.

The screen will say:

```
The M100 file has been selected.
Lets transfer to an IBM file.
Which drive will we write to? (A/B...):
```

- E. Type in the letter (or number) of the drive where you wish the transferred file to go. Then the screen will say

```
We are creating an IBM file.
Type the IBM file name:
```

- F. Type in the file name in the style that is acceptable to the particular computer you are using, and press ENTER.
- G. While the file is being transferred, the disk drives will whirl. When the transfer is complete, you will be returned to the file transfer menu.

3. Return to DISK or DISK10

Typing in 3 at the file transfer menu will return you to DISK or DISK10, where you can transfer files to and from your Model 100 or M-10, as described earlier.

4. Exit from DISK

Typing in 4 at the file transfer menu will return you to the DOS (operating system) of your other computer.

In addition, you can press ESC at any time in the file transfer program to return to the file transfer menu.

It should be noted that you can keep DISK or DISK10 format files and IBM (or another computer's) files on the same diskette. But diskettes are fairly inexpensive, so you can keep such files on separate diskettes too.

It should also be noted that TEXT (.DO) files are the only files you can transfer. If you must transfer a BASIC program, you can save it in the ASCII format on your Model 100 or M-10, then transfer it in that form to your second computer. (It probably will not run on that computer, but you can transfer it.) See your Model 100 or M-10 manual for further instructions.

7. Error Messages in DISK or DISK10

There are two major categories of error that you might encounter while using DISK or DISK10. The most common is caused by the DOS operating system of your other computer being unable to read a particular piece of data, or its being unable to interpret a disk I/O error. Designations for such errors vary widely between computers. Therefore, *you* may have to do the interpreting. Refer to your second computer's manual to learn what messages go with what errors in its system. The other type of error, which is far less common, is related to the operation of DISK or DISK10 in your Model 100 or M-10.

When any error first occurs, an error message will appear on the bottom line of the Model 100 or M-10 screen, and the machine itself will beep. The error message will be preceded by either of these prefixes:

M. 100 (or M-10:)

or

PC:

The prefixes indicate where the problem lies. M. 100: or M-10: means DISK or DISK10 in your Model 100 or M-10 is the culprit, while PC: means the other computer is at fault.

When you see an error message, you must first solve the problem;

then you may press any key to proceed with whatever you were doing. The following messages relate to DISK or DISK10 errors.

1. M. 100: CANT LOAD DIR.

Cause: Usually a bad connection between the two computers. Can also be caused by incorrect COM: parameters in DISK or DISK10 (see the section on using COMSET.BA above). The program will try to perform an operation for about 30 seconds, but if cannot, it will give up and this type of message will appear.

Solution: Check the RS232 cable connection. Most computers require a null modem adapter also (see Sec. 3 of this chapter). See the section on using COMSET.BA above.

2. M. 100: CANT SAVE FILE

Cause: Bad connection.

Solution: See point 1 above.

3. M. 100: DIR. IS FULL

Cause: Too many directory entries. There are a maximum of 19 spaces available on the RAM files directory or the Disk directory.

Note:

Any "invisible" files on your Main Menu take up directory space also. Remember CORTNS.CO? If CORTNS is invisible on your menu, reload it from the cassette, but do not type in RUN 50 (as explained in the loading instructions). Line 50 makes CORTNS invisible on the menu. We recommend leaving *all* files visible when using DISK or DISK10.

Solution: Kill (by pressing F5) several files, or save all of your files in a .SD file by pressing F6, then kill some in the overfull directory.

4. M. 100: CANT LOAD FILE

Cause: Trying to load (by pressing F4) a file too large to fit in RAM.

Solution: Kill some files in RAM, or save all in an .SD file by pressing F6, then kill some RAM files. (Be sure the files you kill free enough RAM space to accommodate the file you want to load.)

5. M. 100: FILE IS .SD

Cause: Trying to size an .SD directory entry directly by pressing F4. You cannot size an .SD file directly.

Solution: Load the .SD file by pressing F2, then size each file individually.

6. M. 100: FILE NOT .SD

Cause: Trying to “load all” a .DO, .BA, or .CO file by pressing F6. You can only do a load all of an .SD subdirectory.

Solution: Place the cursor on an .SD file and do a load all.

Some errors relating to your second computer are not explained by that computer’s manual, so we explain them here. As with DISK or DISK10 errors, pressing any key after solving them allows you to resume whatever you were doing.

1. PC: DIRECTORY IS FULL

Cause: Too many files on the diskette. Apple DOS can hold a maximum of 106 files, including .SD files. The IBM and other computers have limits on the number of files they can hold also. Refer to the computer’s manual for the exact number.

Solution: Copy several files onto another diskette. Use DISK or DISK10 for this, not the second computer’s DOS.

2. PC: IBM FILE TOO BIG

Cause: Trying to transfer a file (by means of the file transfer utility) from a DOS diskette to a DISK or DISK10 diskette that is too large for a Model 100’s or M-10’s RAM.

Solution: Split the file into two or more smaller files, then transfer each one separately.

3. IBM OTHERS

The IBM PC and other MSDOS (IBM PC clone) computers use an error handling routine that prevents the DISK or DISK10 program from handling errors that occur, especially disk I/O errors. Refer to your DOS manual, Chap. 8.

4. TRS-80 Model 4 OTHERS

This computer uses TRSDOS error messages. Refer to the Model 4 technical reference manual, Appendix A.

Chapter 12

The BASIC Program

1. What Is BASIC?

Computers are simple machines. Just as we can compose symphonies from a scale of eight notes or books from only 26 letters of the alphabet, all the sophisticated things that computers do have a simple basis.

You may have heard it said that computers have no judgment and can only follow instructions mindlessly. We will now prove this to be true.

Switch on your computer, and make sure that the wide-bar cursor (the blacked out part where the letters appear in white) is resting on BASIC. Now press the ENTER key. Just tap it lightly. If everything has gone according to plan, the screen should look something like this:

```
TRS-80 Model 100 Software  
Copr. 1983 Microsoft  
8201 Bytes free  
Ok
```

The blinking black rectangle under the "Ok" is called the "cursor." It simply indicates where on the screen the next letter you type will appear. Whenever you see a cursor anywhere on the computer screen, the chances are good that the computer is waiting for you to type something at the keyboard.

In this case, the "Ok" indicates that BASIC is in control of the computer and is awaiting a command. The term "in control" may sound a little strange at first, but it is an accurate description of what is going on. The computer is in some ways like a television. Nobody is interested in watching their television per se. The interesting thing is the program that is showing on the television screen. Another similar

example is a telephone. Nobody talks to their telephone, they use a telephone as a medium of communication with another person.

Similarly, when you are using a computer, you are in fact always interacting with one program or another. Some are built into the machine, for example, TEXT or TELCOM. And BASIC is one of those built-in programs as well. Other programs you load into the computer from your cassette recorder or disk drive. But whichever program you happen to be using is said to be "in control" of the computer, and it is the program in which you are interested.

People often find it hard to figure out which program happens to be in control, but if the screen shows an "Ok" with a cursor flashing below it, the chances are good that BASIC is in control. As usual, we can get back to the Main Menu from BASIC by pressing function key F8 (next to PASTE on the top row of skinny keys). Try going back to the Main Menu, then press ENTER again to get back to BASIC. Type in

```
PRINT"Hello"
```

and press ENTER. Remember, BASIC never takes any notice of what you type until you press ENTER. If you ever seem to be waiting a long time for the computer to respond to you, and there is a cursor flashing on the screen, you might try pressing ENTER if nothing else seems appropriate.

What happened when you pressed ENTER? One of three things. If you typed in the message above exactly as shown, the screen showed

```
Hello
Ok
```

If you forgot the quotation marks, the screen probably showed

```
Ø
Ok
```

If you put in an apostrophe (i.e., a single quote, usually on the same key as the double quote, but pressed without holding the SHIFT key down), the screen probably showed

```
Ok
```

Experiment with doing it all those ways, and see if you can get the screen to give the predicted results. Rest assured, if you type in the examples exactly as told to do in this book, you are certain to get the results predicted.

This is one of the most trying aspects of computers. They are so simple and unsophisticated that they force people to behave like machines. If you meet a programmer, you may find him (or her) unusually attentive to trivial details which are clearly unimportant. But this obnoxious trait is not the fault of programmers themselves. They have been trained by hours upon hours of unremitting frustration caused by programs crashing because of a misplaced semicolon or an O instead of a zero or a lower case L instead of a numeral 1. This is (slowly) changing as computers become more powerful and programming becomes more sophisticated, but the problem is not over yet.

If you want to get past the beginning stages of BASIC, you will have to resign yourself to typing your responses and commands into the computer in exactly the way it wants them, although such attention to trivia is tedious for most people. This is one of the reasons why people assert that computers are "morons." Your computer can make millions of mistakes a second, and more powerful computers can make mistakes at an even faster rate. Computers can be very frustrating in that they always do what *they* think you said, not what *you* think you said. They are utterly unreasonable, and you must either always defer to their opinions on such issues or give up computing.

Things are gradually getting better, however. Responsible programmers are striving to make computers more amenable to human needs—for example, every effort has been expended to make the programs described in the other chapters of this book unusually easy to learn and use.

In fact, you have already begun to bend the computer to your will. Believe it or not, the simple command

```
PRINT"Hello"
```

has many of the features of a complete program. It consists of the word PRINT, which BASIC accepts as an instruction, and the word "Hello", which it accepts as data to be operated on by the instruction PRINT. The net result is that BASIC takes the word "Hello" and, in response to the command PRINT, displays it on your computer's screen.

What happened is that when you pressed ENTER, BASIC started to read the line that you typed in. When it saw the first word was PRINT, it recognized a word it knew. Words BASIC knows are called "keywords" or "reserved words," for reasons we will go into later. BASIC does not know very many words, and to recognize a word it must be a perfect match; so if you make a typo such as

```
PRNIT "Hello"
```

BASIC will give up in confusion, having encountered a problem it cannot deal with. Try it. You should get the message.

?SN Error

This is BASIC's way of saying "Sorry, I don't understand."

If you type in PRINT correctly, so BASIC recognizes it as a keyword, however, it will expect some data to follow. The program recognizes two different types of data, which are called "string" and "numeric." When BASIC saw the quotation marks before "Hello" in the example, it recognized the word as string data, and copied it on the screen exactly as you typed it. The term "string data" is in common use in programming circles, and indicates that we are talking about text, and that even if numeric digits appear in the middle of such text they are to be treated as if they are a bunch of letters rather than numerals to be operated on mathematically. A string can be a single letter, a word, or a bunch of words. As far as BASIC is concerned, everything inside a pair of double quotation marks is treated as a single string, and it can be as short as one character or as long as 255 characters. A character is anything that you can type in at the keyboard, including the alphabet (upper- and lowercase), numbers, punctuation marks, and even the spacebar, which, believe it or not, is treated as an actual character and not simply as the absence of a character. To prove this to yourself, try a little experiment. Type in this:

```
PRINT"      Hello"
```

(Do not forget to press ENTER.) The screen will say

```
      Hello
```

```
Ok
```

You can also prove to yourself that there is a difference between the spacebar as a character and a space which is simply the absence of a character by experimenting with the word-wrapping feature of the TEXT program in your computer. It is not a big issue, really, except that computers often get obstructive if you so much as put in an extra space or leave one out. To a computer, pressing the spacebar generates a character just as much as pressing the letter A, which is very different from producing no character at all.

Surprisingly, BASIC is very tolerant about the placement and number of spaces you generate.

So far we have only looked at one BASIC keyword, namely, PRINT, and we have encountered string data. That string data was "Hello" in

quotation marks. But there is also numeric data. And if BASIC is alerted to expect some data, for example by a PRINT command, it must decide whether the data it has been alerted to is string or numeric. In deciding, BASIC follows a very simple rule: If the data starts with quotation marks, it must be string; if it does not start with quotation marks, it must be numeric. Recall that when you typed in

```
PRINT Hello
```

without the quotation marks, the screen said

```
0
Ok
```

Now you know why. Since Hello did not start with quotation marks, BASIC just assumed it was a number. Whenever BASIC encounters a number, it tries to simplify it, so it decided that Hello had a numeric value of 0. You can test this number simplification feature of BASIC simply by typing in

```
PRINT 2+2
```

The screen will say

```
4
Ok
```

The fact that BASIC thinks Hello is a number may not seem so strange to you if you cast your mind back to your school algebra. Remember X ?

$$X + 3 = 5$$

What is X ? Obviously 2. BASIC knows algebra too. Try typing in

```
PRINT X
```

The screen will say

```
0
Ok
```

So numeric variables can serve as a sort of shorthand for long or complicated numbers. But better than that, they can be used to represent values you do not know when you write the program, but which the computer will be informed about later when the program is running—for example, the time of day or date, or the age of the user.

It is possible to have string variables too! The main difference be-

tween string and numeric variables is that the last character in a string variable's name must be a \$ sign. Try this: Type in

```
LET X$ = "This is a string"
Ok
```

(Do not forget the quotes.) Now type in

```
PRINT X$
```

Look at your screen for the result.

You can play with string and numeric variables for a while, but do not confuse them. You will run into a problem if you try to LET a numeric variable (without a \$) equal a string variable (anything in quotation marks) or the other way round (LET is a command keyword in BASIC). For example, a statement such as

```
LET X$ = 5
```

will produce

```
?TM Error
```

This is a "type mismatch" error, caused by attempting to put a numeric value (5) into a string variable (X\$).

To summarize what we have said so far, BASIC recognizes two different types of data, string and numeric, each of which can be in the form of a variable or a constant. BASIC also recognizes a number of commands or instructions, known as BASIC "keywords." Most keywords serve to tell the program to operate on data in some way. For example PRINT causes data to be displayed on the computer's screen, LET causes a value to be assigned to a variable, etc.

But how do you program with BASIC?

2. Programming

You may have noticed that whenever you have given BASIC a command so far, it has immediately done what you told it to and displayed the results. A BASIC "program" is a set of such instructions that is always performed in the same sequence. The way to get BASIC to wait for a complete set of instructions before performing the first one is to number them. Try typing in this:

```
1 PRINT "Hello"
2 PRINT 2 + 2
```

When you are finished with the typing, notice that nothing happens. BASIC is accepting your instructions and storing them. It will not act

on them until you tell it to. You tell it to carry them out by typing in RUN or by pressing the F4 function key. If you typed in the instructions as shown above, the screen will say

```
Hello
4
Ok
```

Type in RUN again, and the same thing will happen. Your program is stored in your Model 100 or M-10 and can be invoked as many times as you like simply by typing in RUN, which is another BASIC keyword.

The potential for creative programming with the three keywords we have used so far is somewhat limited, but a relatively interesting program can be written by the addition of one more keyword, namely, INPUT.

Try typing in the following program:

```
1 PRINT "Please type your name"
2 INPUT X$
3 PRINT "Please type your age"
4 INPUT Y
5 PRINT "In four years, ";X$," you will be";Y+4
6 PRINT "Think about it"
RUN
```

When you type in RUN after entering the numbered program lines, BASIC starts obeying your instructions, beginning with line 1. Here is what happens:

Line 1: BASIC obeys the PRINT instruction by displaying the message "Please type your name" on the computer's liquid crystal diode (LCD) screen.

Line 2: BASIC displays a question mark and a blinking cursor on the screen to indicate that it is waiting for you to type in something on the keyboard. This is what the INPUT instruction does—takes input the user types in at the keyboard and stores it in the variable associated with the current INPUT statement after the user presses ENTER. So type in, for example,

Ron

and press ENTER. BASIC will take what you typed—in this case Ron—and store it in the variable associated with the second line's INPUT instruction—in this case X\$. Then the program will go on to the next line.

Line 3: BASIC obeys the PRINT instruction and displays the message "Please type your age" on the LCD.

Line 4: BASIC again waits for the user's input and the pressing of the ENTER key. Just type in

73

and press ENTER. The INPUT instruction on line 4 will put the value you typed in, 73 in this case, into the variable Y.

Line 5: This PRINT statement instructs BASIC to display a whole list of data. Notice that each item is separated from the ones next to it by semicolons. First BASIC prints the string constant "In four years, ", then it prints the contents of the variable X\$, then it prints the next string constant ", you will be", then it evaluates and prints the result of the numeric expression $Y + 4$.

Line 6: PRINT tells BASIC to display the string constant "Think about it". If you do not want to think about it, you can get rid of line 6 by typing in the number 6 and pressing ENTER. A new, empty, line 6 replaces the old "Think about it" line 6.

If you want to look at your program, type in

List

You can stop the scrolling by pressing the PAUSE key. Restart the scrolling by pressing the PAUSE key a second time. You can go back and change lines simply by typing in

EDIT

which puts you in the editing mode; this is like TEXT in many ways, except that when you press F8 you return to BASIC rather than to the Main Menu. This editing mode is a powerful and unusual feature, and one that makes this particular version of BASIC a very nice one to use. (There are hundreds of different dialects of BASIC, each with its unique quirks.)

3. Flow of Control

Notice that BASIC started with the first line of the program shown above and performed each line one after the other in numeric sequence. The jargon for this is "flow of control." While the first line was executing, it was in control of the computer and printed "Please type your name". Then control flowed to the next line, and you typed your name under the control of line 2. Then control flowed to the next line, and so on. Unsurprisingly, this type of flow of control is called "sequential flow of control." But there are also two other types available to the BASIC programmer—namely, "conditional" and "repetitive."

You can change a program to include a conditional flow of control quite easily. Type in

5

and press ENTER. Then type in

6

and press ENTER. This gets rid of your old lines 5 and 6. If the screen says

?UL Error

it just means that line 5 or line 6 was already gone. Now type in

List

and press ENTER (or press key F5) to see your current program; then type the new line 5

```
5 IF Y<30 THEN PRINT "That's pretty old" ELSE
  PRINT "That's not old, really"
```

If you run this program now (by typing in RUN or pressing function key F4), you will notice that only one of the two string constants on line 5 gets printed. The other is bypassed, depending on the value assigned to Y in line 4. If you typed in a number less than 30 in response to the age question, the first message will be printed; otherwise the second will be printed. Notice the comparison operator <, which means "less than." The way the new line 5 works can be diagrammed as shown in Fig. 12.1.

In this example, there is no line 6, so the execution terminates. The IF instruction is one of the "conditional" instructions in this version of BASIC—it allows a choice between two different options.

The third main form of flow of control is repetition. Consider the following program:

```
1 FOR I=1 to 10
2   LET B=11-I
3   PRINT B; "green bottles, hanging on a wall"
4   PRINT "If one green bottle"
5   PRINT "Should accidentally fall"
6   PRINT "There will be" ;B-1; "green bottles"
7   PRINT "Hanging on the wall"
8   PRINT
9 NEXT
```

Try running this program. Notice that the computer does not mind making a fool of itself. There is nothing on lines 2 through 8 that you

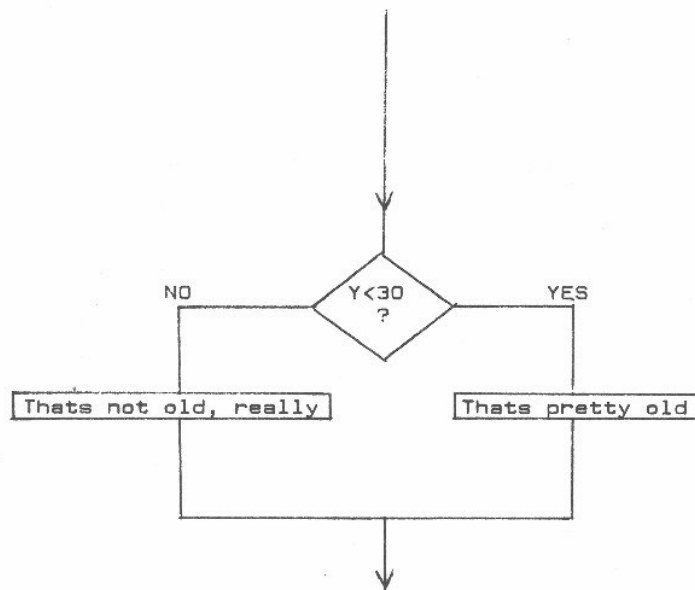


Figure 12.1

are unfamiliar with. The meat of this example is in lines 1 and 9. The program is an example of a “FOR/NEXT loop.” Although the FOR and the NEXT statements are on widely separated lines, neither is valid without the other being present. They always come as a pair. Indeed, the idea of a FOR statement without a NEXT statement is like a left parenthesis without a corresponding right parenthesis. The FOR statement marks the beginning of program lines to be repeated, and the NEXT statement marks their end. That is to say, the lines are executed in sequence until line 9, at which point control returns to the FOR statement back on line 1. This repetition is also known as “looping,” and lines 1 and 9 mark the beginning and end of the “loop.” This particular loop will be executed 10 times. Notice that the value of I is incremented by 1 each time the NEXT statement is executed, and is compared with the limit (in this case 10). When the value of I (the loop variable) exceeds the limit (10), control is not passed back to the FOR statement on line 1, but would be passed on to line 10 if there were one. Since no line 10 exists, the program stops and the screen says:

Ok

4. Conclusion

This chapter has briefly scanned the main features of the BASIC language in its Model 100 or M-10 version. The program consists of data and instructions. Data can be string or numeric, variable or constant. Instructions or BASIC keywords generally either cause the program to manipulate data or govern the flow of control within the program.

Conclusion

1. Significance of Model 100 or M-10

The significance of the Model 100 or M-10 concept is indeed far-reaching. Portable computers represent perhaps the most striking change in the computer industry since the advent of microprocessors. The ability they offer businesspeople or students to carry their own computers around in briefcases, to have a wide variety of computer functions at their fingertips virtually instantaneously, and to connect, by means of a built-in modem, into other computers anywhere, signals the achievement of a new level in business and scholarly efficiency and effectiveness.

It is our feeling that the Model 100 or M-10 represents the shape of things to come in the portable computer field. The flexibility of the hardware and associated peripherals such as disk drives and portable printers makes the machine truly the answer for modern informational and data processing needs.

2. Software

Software, of course, is the key. Your guide to good software for lap-sized computers is that it must be nonmemory-consumptive and yet extremely functional.

The software described in this book is purposefully aimed at extending the business capabilities of the Model 100 or M-10. This type of software design can be characterized as allowing increased computer performance without requiring user familiarity with computer procedures, jargon, or mechanics.

In our discussions of programs, we have tried to explain carefully their built-in capabilities and thus to enhance their usefulness to

Model 100 or M-10 users. We have also tried to point out how adaptable they are to methods and practices already being used by many businesspeople.

In our opinion also, portables are a new form of computer and represent new directions of computer use; therefore, software for portables also must represent a new direction in concept and design. We cite the SCRIPSIT 100 or PRNT10, DATA or DATA10, EXPNS/GRAPH, and DISK or DISK10 programs for the Model 100 or M-10 in that light. Memory is a most important consideration, as is simplicity of function. Software must do what managers or executives need done to express their ideas or accomplishments or to organize their work. Now lap-sized computers cannot pretend to be a substitute for corporate computers—that is, they are not designed to handle the day-to-day record-keeping and management tasks for an entire large company. But in regard to individual executives or managers, or even small companies, their usefulness and versatility should not be underestimated.

For example, take the spreadsheet. Often, when people think of spreadsheets, they immediately think of VISICALC, a type of spreadsheet generator that requires the building in, by the user, of the various mathematical formulas and numerical relationships required to create a budget or financial report. But the spreadsheet produced by EXPNS/GRAPH on the Model 100 or M-10 goes VISICALC one better. We like to say that first there was VISICALC, next there were VISI-CLONES, and now there is EXPNS/GRAPH. EXPNS/GRAPH as a financial or expense report generator allows up to 250 separate actual entries, but has potentially over 6000 candidate entry locations. It is truly a three-dimensional spreadsheet. It contains 18 rows and 18 columns, and allows up to 18 entries for a single row label in any column. It calculates row, column, and cumulative totals and even replicates across columns. It shows profit or loss, plots cash flow, and even carries out automatic growth rate or decline projections. But the real significance of EXPNS/GRAPH in this discussion for Model 100 or M-10 users is that all its math is built right in. The business manager or executive just has to enter the numbers and labels. There is no format to set up, and no formulas to calculate and enter.

The developmental reasoning leading to EXPNS/GRAPH was that a new concept in design had to prevail. Ease of use, as well as practicality and functionality for the type of user that the Model 100 or M-10 makes sense for, were the main considerations.

The same premises were the bases for developing the word processing or formatting program SCRIPSIT 100 or PRNT10. The Model 100 or M-10 user certainly needs the capabilities of a WORDSTAR type of program, but may not have the computer skills required to use it. The

claim to fame of SCRIPSIT 100 or PRNT10 is that it enables lap portable users to produce completely formatted articles from any text with just the entry of a file name. It was the need for simplicity that led to the innovation of a user-accessible specifications file. As explained back in Chap. 3, the program does have easy-to-use dot commands which allow for an enormous flexibility of formatting within a single document. But, for the executive who merely wants to type and print, the WSPEC file alone provides a finished piece having margins, headers and footers, and numbered pages, as well as many other features.

There is forced on the software designer a not-so-gentle marriage between the demands made by the limitations of the hardware involved and the faculties and inclinations of the type of person who will be using the programs. Look at it this way. The business executive or manager knows his job quite well. He is generally an excellent communicator and has developed quite an appreciation of the need to report the financial considerations of the areas for which he is responsible. But he is first of all an idea person, a conceptualizer, a planner. Further he is the worrier, the problem solver for his department or company. Such a person buys the Model 100 or M-10 only as a vehicle to facilitate those functions. He has neither the time nor the inclination to develop intense technician-level skills to accomplish what he must do. He is always seeking the means to communicate more easily, to organize more effectively, to plan more precisely. But he has an inherent aversion to assuming too many tasks that require great amounts of attention being paid to new disciplines. His hands are already full.

"Give me programs that report more easily and effectively what I could have to say another way," is the message from potential users of lap portables. "I am already spending my creative energies with the problems I am responsible for, and I don't want to spend more time deciphering and manipulating complicated programs to try to communicate my solutions." The GRAPH portion of EXPNS/GRAPH was designed with those sentiments in mind. It is a graphics package that gives meaningful data displays, but with no mathematical interplay required on the part of the user. As you saw from the instructions in Chap. 10, the program prints out on any of five Radio Shack dot matrix printers, as well as on the CGP-115 color pen plotter. It generates pie, bar, or line graphs directly from any data entered on the EXPNS spreadsheet, by row or column totals. Therefore, any manager using the program in conjunction with EXPNS can have a columnized print-out of numbers and then an instant graphical analysis of what those numbers mean, complete with labels and values shown on the graph.

There is also a great deal to be said about the usefulness of the

ADDRSS and SCHEDL programs that are built into the Model 100 or M-10. Of course, they have their inadequacies. In order for the finding functions of either program to be truly useful, users must be able to put information into the ADRS.DO and the NOTE.DO files in a fashion that is not awkward and slow. Moreover, they must be able to enter data with some consistency of form in order to retrieve it later in a usable form. But many people find that using either SCHEDL or ADDRSS as ready sources of names and addresses is impractical because of the difficulty in creating and maintaining the listings and the tedium of trying to type in entries in a consistent form on a regular basis.

Again, the mission of the software designer must be to design solutions to such problems—to design programs responsive to the needs and inclinations of both the machine being used and those who are or will be using it. So in this case DATA or DATA10 was created—the data base program that enables users to build files quickly and in a consistent form by means of screen prompts telling them how and where to fill in “reverse video blanks” with their data. Furthermore, by means of the program, users can create their own screen configurations rapidly to suit their own business needs and can recall any of the records stored in them to the screen again for updating or editing. Users can have any or all the data fields from any or all the records listed in whatever print configuration desired, and data from those records can be merged into form letters or documents prepared by means of SCRIPSIT 100 or PRNT10.

Another program that enhances the existing power of the Model 100 or M-10 by allowing it to function as a “mini data base” is the fast-sort program called SORT or SORT10, which accompanies and is designed to interact with DATA or DATA10. SORT or SORT10 will sort any file built by DATA or DATA10 by any of the 16 fields the latter allows, and does it all *in situ*, meaning that it does not consume additional memory while sorting.

It should be apparent that for the Model 100 or M-10 to respond adequately to user needs and applications, it must have a tremendous capability crammed into a tiny amount of RAM space. After all, users must be able to carry their computers around with them—which is the whole sense behind the concept of “lap portables.” And at first glance, it might seem that such smallness in size would exclude certain communicating abilities associated usually with much larger machines. However, TELCOM and TELEX+ provide a new freedom and flexibility in communications, especially for middle-level managers or executives on the go who do not have a ready access to telexes or similar machines. Telex computers cannot be accessed directly by the Model 100 or M-10 because of some feed parameters that are somewhat

unique. But special communication parameters for proper transmission have been developed. With **TELEX+**, you can send through the Action Telex system any text file to any telex machine in the world, or an Email (a mailgram type of message) for next day delivery to any address in the United States at reduced rates.

3. Increasing Storage Capability

At this point you are well equipped to use your Model 100 or M-10. You can even be considered an “applications professional.” It is now time to put the computer to work for you in ways that will extend your business and personal life. And mention of the lap portable’s smallness of size brings us to an important recommendation: You should obtain disk storage capabilities. The best and most logical extension of the Model 100 or M-10 portable computer concept is the “portable disk drive” manufactured by Percom Data Systems of Dallas, Texas. The operating system for this portable disk drive was developed by the Portable Computer Support Group, and extends the concept of the Model 100 or M-10 more logically than any other drive on the market. The drive is available directly from PCSG. But in Chap. 11 we talked about another disk storage approach—the **DISK** or **DISK10** program, which is available from your local Radio Shack Computer Center or store or Olivetti dealer. That program enables you to use another computer, such as the IBM PC or IBM PC JR, the TANDY 2000, or a wide range of Apple and other Radio Shack computers, as a disk storage device. It also allows you to extend the intuitive file handling abilities and Main Menu concept of the Model 100 or M-10.

We recommend that you go with one of these two approaches. There are some other disk or high-speed tape storage devices on the market for the Model 100 or M-10, one even offered by Radio Shack, that, in our opinion, have various drawbacks, including the fact that many Model 100 or M-10 users do not find them to be intuitive extensions of the basic concepts behind the Model 100 or M-10.

However, both the portable disk drive described above and the **DISK** or **DISK10** program enable you to display files on your computer’s screen in the form of a disk menu that looks like your Main Menu. You can transfer files to or from **DISK** or **DISK10** by just pressing a function key. And you can transfer and store any kind of file—**BASIC**, machine code, or **TEXT**—so it is always ready to run, without requiring any protocol or conversion techniques by you. Nor with either of these approaches is there any difference in technique required to use the diskette as opposed to your Model 100’s or M-10’s RAM memory.

One more word about portables. Part of what this whole revolution in computers is all about is portability. That is why you brought your

Model 100 or M-10 in the first place. What you need is the ability to carry your computer and its memory around with you, so that wherever you are you can access your data quickly. The Percom portable disk drive is a dream come true for the Model 100 or M-10 user. It weighs less than 3 pounds, is only 4 inches wide, is only as tall as your Model 100 or M-10, and is 8 inches deep, exactly the depth of your computer. It is completely portable itself. And completely portable means it is also battery-powered. Its battery is rechargeable directly from a wall outlet, and it takes only 1 hour of charging to bring it back to full power capacity. It can even be recharged in 1 hour by plugging it into an automobile cigarette lighter. And if you prefer, you can operate it directly from a wall plug.

The unit actually goes into a "sleeping" mode whenever the disk drive is not actually reading or writing data from or to diskette. If you were to leave it unattended, or not in operation, the battery would remain charged for 30 days. Between charges, the drive will transfer up to 10,000 pages of information. Of course it can do this because the only time there is any drain on the battery is when the drive is actually working.

The Percom drive uses the little, 3½-inch diskette from Sony Corporation, called, for some obscure reason, a "microfloppy." The truth is that it is not floppy in the sense that conventional diskettes are. Instead it has a hard plastic casing and a metal hub, plus a sliding metal door on the diskette itself that is only open when the diskette is inside the disk drive. In short, this diskette is virtually damageproof. You can toss one into your shirt pocket, and carry it without fear losing data. Again, in this age of portability, that is the kind of rough-and-tumble flexibility required. People on the move must be able to throw a group of diskettes into their briefcases and not have to worry about possible damage.

The storage capacity of the little diskettes is also nothing short of amazing. They are only single-sided, but on that one side there is ½ megabyte of storage capacity. The operating codes take up a good amount of room, but even with them there is still about 400K memory on each diskette. When you consider that with a completely cold started Model 100 or M-10 you only have 29K memory, it is obvious that Sony's "microfloppy" has moved into a different league.

Picture yourself with 11 or 12 of those diskettes in your briefcase. You would have over 5 megabytes (5000K) of memory. On one diskette you could put the entire world almanac. In addition, you would not have any trouble carrying with you the entire record of your correspondence, projects, reports, and customer information for the past several years.

At first when you hear the price of the portable disk drive, it may seem high, especially when compared with the prices of stationary drives. But portability requires a great deal of precise engineering, and in our opinion it is certainly worth the added investment to obtain the capability this unit affords the Model 100 or M-10 user.

4. Becoming Dependent on the Model 100 or M-10

With adequate storage capability, you can begin to examine every aspect of your work activities and become dependent upon the Model 100 or M-10 as your information processing source. Stop to consider just some of what you can put into your data base:

- New D input screens that will help you selectively recall any information you would profit by to have at your fingertips
- All your correspondence, with appropriate formats, keeping it filed on diskette so you can review it at any time and even edit and utilize previous documents for current situations
- The graphing capabilities of GRAPH, to help you make your reports come alive
- The EXPNS program, to help you accurately record and maintain your business as well as personal expenses, chart your budgets and other aspects of your financial planning, and provide your colleagues with the excellent, hard-copy reports the program will generate
- The TUTOR+ program, available from PCSG, which can help you learn to type, memorize poetry, or even learn a foreign language

In essence, you can make your portable computer an extension of yourself. It is an accurate memory and information handling device that, combined with your own abilities and memory, can increase your mental capacities in a truly phenomenal way. Think of it as a device that amplifies your own mental and intellectual capacities in the same way that a microphone amplifies your voice, and you are beginning to project yourself into what can be called the "computer reality."

We are convinced that in the future, portable computers will become virtually ubiquitous, meaning, of course, that they will be virtually everywhere. Within a few years, portable, brief-case-size computers could be under everyone's arms, on desks, and in classrooms all over the world. Who would have thought 15 years ago that the electronic calculator would become as commonplace as it is today? Likewise one day the portable computer will take a similar position in our everyday lives.

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Sam Redman and Michael Stanford are the founders of the Portable Computer Support Group, one of the few companies supplying outside software to Radio Shack. Mr. Redman, who came to this enterprise after pursuing a career as a chemist and businessman, is Co-Director of this Dallas-based company. Mr. Stanford, also Co-Director, is a programming specialist of many years' experience. He collaborated with Mr. Redman on the design of much of the software covered in this guide.

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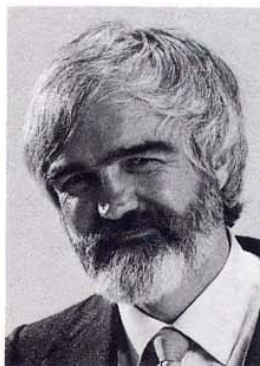
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The Authors: Sam Redman and Michael Stanford are the founders of the Portable Computer Support Group, one of the few companies supplying outside software to Radio Shack. Mr. Redman, who came to this enterprise after pursuing a career as a chemist and businessman, is Co-Director of this Dallas-based company. Mr. Stanford, also Co-Director, is a programming specialist of many years' experience. He collaborated with Mr. Redman on the design of much of the software covered in this guide.



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